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STATE OF THE PROPERTY-CASUALTY INSURANCE INDUSTRY

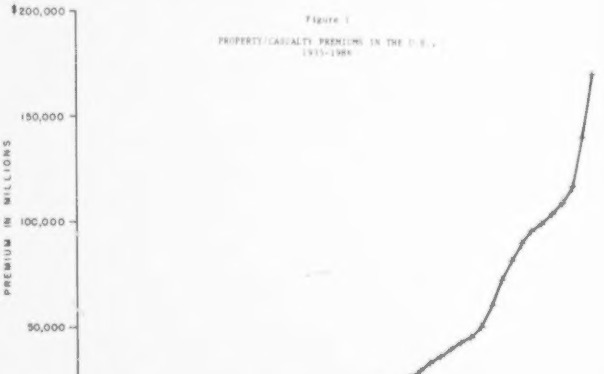
*Earl R. Lanning**

Before beginning a discussion of the state of the property-casualty (P/C) insurance industry—past, present, or future—how the term "insurance" is being used should first be defined. Although insurance can be viewed from several directions—legal, mathematical, business, social, or economic—here it will be considered as an economic system or social device. The definition, therefore, will be "an economic system for reducing risk through transfer and pooling of losses" or "a social device in which the losses of few are paid by many." The British have for many years described insurance as a device whereby losses fall lightly upon the many, rather than heavily upon the few. Since "risk" involves "*chance* of loss," risk is reduced through pooling a large number of units, even though losses may not be reduced (by engineering or other loss reduction techniques), since forecasting the amount of loss that will be suffered by a large number of well-distributed units is much more accurate than forecasting whether or not a single unit will suffer a loss. This leads to the British definition above, where "losses fall lightly upon the many" (the premiums we pay), rather than "heavily upon the few" (the loss that would be suffered by the unfortunate few if there were no such device as insurance).

In order to understand the "state of the property-casualty insurance industry," it is important to understand the simplified definition of insurance. Individuals need to understand that insurance companies do not print money with which to pay claims, nor do they grow it on trees (although some revenue is received from investments). They have to obtain funds principally by collecting premiums from the many with which to pay the losses of the few. If the "few" who suffer losses becomes one of every fifty insureds (where it had been one per hundred) and the average loss remains the same, the premiums must increase by one hundred percent (100.0 percent); or if the size of the average loss doubles while the percentage of units suffering loss remains the same, premiums must double. If both (the ratio of losses-to-insureds and the average size of loss) increase at the same time, it becomes evident what happens to the premium which must be charged to each insured. This has been happening, at an unprecedented rate, during the past ten years.

Growth of the Property-Casualty Industry In the U.S.

A review of Figure 1 shows the relatively slow growth of the P/C premiums written in the U.S. during the twenty-five year period from 1935 to 1960. In contrast, there was increasing growth during the 1960s, rapid growth during the late 1970s, a leveling off of the growth rate in the early 1980s, and then very rapid growth presently. The remainder of this discussion will be concerned with the changes in society which have brought about this tremendous growth in premiums, and losses, as well as the increased difficulty in forecasting losses in order to properly price insurance coverage. Since an insurance policy is a contract to pay future losses caused by unforeseen events, subject to certain terms and conditions, the insurance company promising to pay these losses does not know the cost of the "product" it is selling until long after it has "set the price." The ability to forecast losses and thus come close to establishing a fairly accurate price was almost a science prior to the 1960s. However, this procedure became far more unscientific during the next



**Vice President, The Crump Companies, Inc., Memphis, Tennessee.*

two decades, which partly accounts for the sharp swings in the underwriting "profit-and-loss cycle" and the unprecedented industry losses shown in Figures 2 and 3.

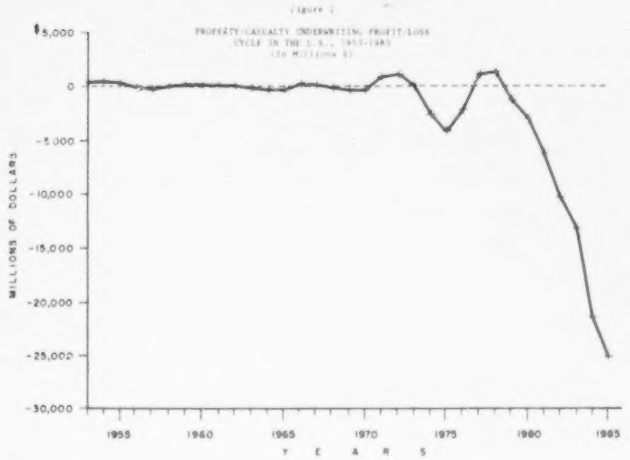


Figure 2

PROPERTY/CASUALTY UNDERWRITING PROFIT/LOSS CYCLE IN THE U.S., 1953-1985 (In Millions $)

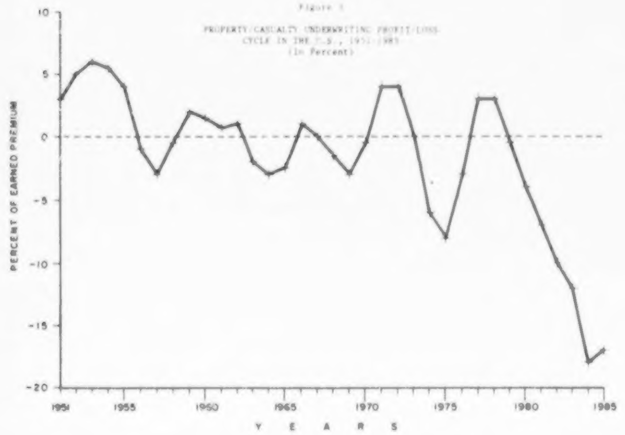


Figure 3

PROPERTY/CASUALTY UNDERWRITING PROFIT/LOSS CYCLE IN THE U.S., 1951-1985 (In Percent)

Present State of the Industry Contrasted With the Past

Figures 2 and 3 show the relative consistency of the profit-loss cycle through the 1960s. Figure 2 shows the underwriting profit or loss of the industry in the U.S. expressed in dollar amounts, while Figure 3 shows the same profit or loss expressed as a percentage of premiums. Prior to 1960, the majority of the premiums were for property coverage (fire and allied perils coverage on buildings and contents and physical damage on autos), where losses can be forecast much more accurately than with casualty (liability) coverage. With a rapid increase in the number of lawsuits filed, along with the tremendous increase in the size of judgments, casualty premiums began exceeding property premiums in the 1960s and now account for at least two-thirds of total P/C premiums. Not only are liability losses more difficult to forecast, but the actual result of some types of risk is not known for ten to twenty or even more years. By that time, inflation, coupled with the changed attitude of society and the courts, has totally changed the situation since the price was established. Setting the price for such coverage is like playing a game where the opposing team has the privilege of changing the rules, at their option, throughout the game.

Figure 2 also shows a contrast between the present state of the industry and the past. The total underwriting loss of the industry during any "loss cycle" never exceeded $4.5 billion prior to the unprecedented losses of the 1974-1975-1976 cycle, when losses totaled slightly in excess of $9.0 billion. In stark contrast, the present loss cycle, which began in 1979, has thus far produced underwriting losses in excess of $85.0 billion, with several more years of losses yet to come (underwriting losses in 1985 alone were in excess of $24.5 billion).

To eliminate inflation from the figures, refer to Figure 3 where underwriting profits and losses are expressed as a percentage of premiums. Again, contrasting the present state of the industry with that of the past, it can be seen that the loss percentage never exceeded 5.0 percent prior to 1975, then it reached 8.0 percent. In contrast, in 1982 the figure exceeded 10.0 percent; in 1983 it was 13.0 percent; in 1984, 18.0 percent; and in 1985, 17.0 percent.

In addition to the capital invested by stockholders of stock insurance companies, insurance companies have retained earnings accumulated over the years (unearned premium reserves and loss reserves) which are invested in stocks, bonds, and other investments. The interest, dividends, and capital gains from these investments make up the "investment income" referred to at the beginning of this article. In most years when the industry suffers an underwriting loss (which is the difference between the "premiums earned" and the "losses incurred plus expenses paid"), this loss is more than offset by investment income, so there is still an "operating income" (the amount by which investment income exceeds underwriting loss). In 1984, and again in 1985, the underwriting loss of the industry exceeded the investment gain, thus producing an operating loss for each year. This was the first time the industry as a whole had suffered an operating loss since 1906 (the year of the great San Francisco earthquake and fires), which is another indication of the present state of the industry.

Underlying Causes for the Present State of the Industry

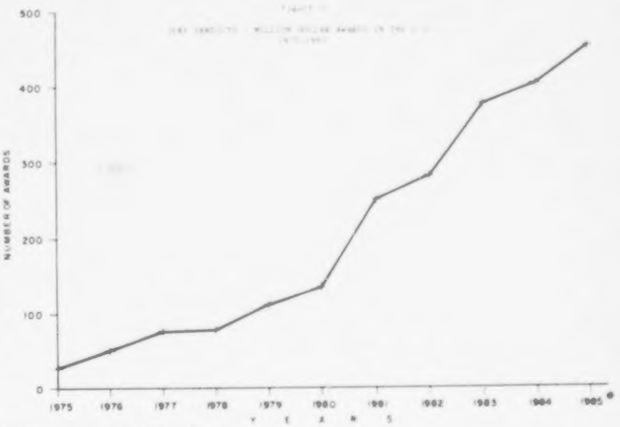
It is difficult, if not impossible, to determine who should be blamed for the unprecedented length and depth of the current loss cycle. The insurance industry, itself, is largely to blame for the present "state of the insurance industry" and the unprecedented *underwriting* losses, even though it is not responsible for the tremendous growth in losses, and thus the premiums needed to cover those losses. If the rapid growth of losses, both in frequency and size, had been unpredictable, the underwriting losses suffered from 1979 to the present could not be blamed on the industry. This, however, was not the case. In spite of obvious loss trends which should have been apparent to everyone, insurance companies not only failed to increase prices to cover their increasing losses, they actually lowered prices to attract premiums (engaged in a price war) to invest. Companies acted as though they could defy all sound insurance principles and let "investment income" be the answer to the problems which were bound to come. Since liability losses, unlike property losses, take several years to mature, the folly continued for about six years before results became so bad that corrective action had to be taken.

The tremendous increase in the number of lawsuits, and judgments, along with the enormous increase in the average size of judgments (Figures 4, 5, and 6) has necessitated premium increases that are often said to be "unaffordable." This has been caused by a change in attitude on the part of society as a whole, as well as the legal and court system. If society wishes to tolerate the tort system that has evolved over the past couple of decades, it will have to pay for it in the form of higher premiums and higher prices for the goods and services of firms who also must pay these higher premiums. Remember, insurance is a "social device whereby the losses of the few are paid by the many." When these losses increase in number and/or size, they must be paid for through ever increasing premiums. When this cost reaches the point where the many either cannot or do not wish to pay it, a way must be found to reduce the number and/or size of the losses. That is what the present efforts at "tort reform" are attempting to accomplish. Also, the efforts of the insurance industry to change from an "occurrence" form of liability coverage to a "claims-made" form is an effort to stop an abuse imposed on the industry (and thus on society) by the courts and make results more predictable so that pricing can become more accurate. If these efforts reduce either the size or number of losses, competition will make certain premiums are reduced proportionately.

Some Specific Examples of "Claims Out of Control"

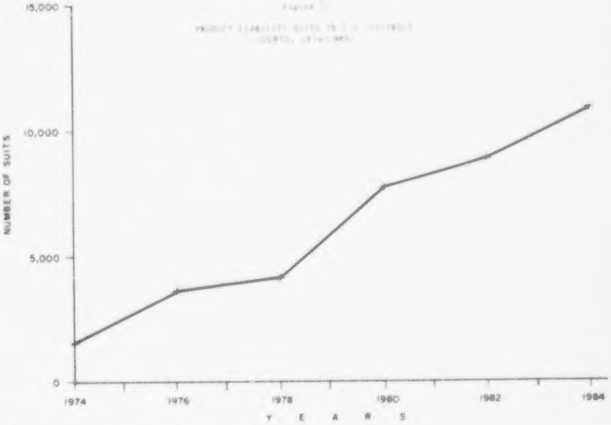
Figure 4 shows the rapid growth of "lottery type" verdicts in recent years. Prior to 1962, there had never been a jury verdict in the U.S. for as much as one million dollars for a personal injury. However, following the 1962 verdict, the number of million-dollar verdicts grew to 7 by 1970, to 27 by 1975, to 134 by 1980, and to 401 by 1984. There were 225 verdicts in excess of a million dollars during the first six months of 1985, so the number probably exceeded 450 by the end of the year. Many of the verdicts were for several million dollars, with the average probably exceeding two million. In addition, add to that the fact that there are several out-of-court settlements for every jury verdict, and with these settlements being based on the size of present verdicts, it is easy to understand why some types of risks are finding insurance to be either unavailable or unaffordable.

According to Figure 5, the number of product liability suits filed in U.S. district courts increased by more than 600.0 percent during the ten-year period from 1974 to 1984, with approximately half the verdicts being for the plaintiff. During that same time, the average size of the verdicts increased by several hundred percent, which has caused products liability to become very expensive, if not unavailable, for some types of products. The price of these products has to take into consideration the cost of this exposure, whether it is insured or self-insured.

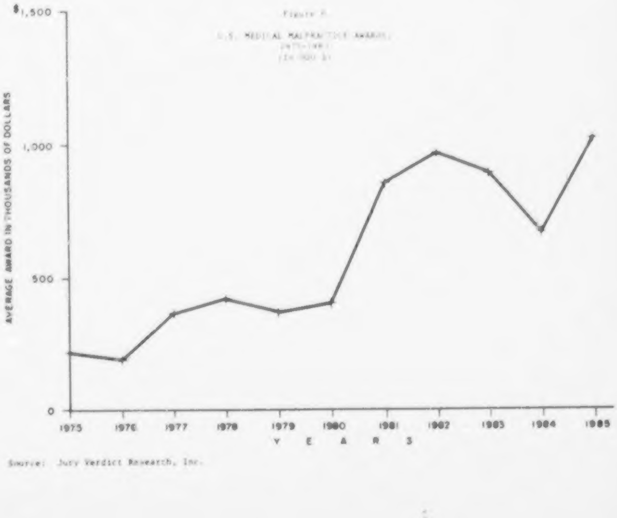


*1985 estimate based on first six months.

Source: Jury Verdict Research, Inc.



Source: Administrative Office of U.S. Courts



Source: Jury Verdict Research, Inc.

Figure 6 shows how the average medical malpractice award increased over the 1975-1985 period (almost 500.0 percent). The number of such awards has also increased substantially. A recent study showed that claims against doctors increased from 12.2 per 100 doctors in 1979 to 20.3 per 100 in 1984. These claims are expensive and time-consuming to defend, even if there is no verdict for the claimant.

In summarizing this discussion of the present state of the property-casualty insurance industry, consider the definition of "insurance" given at the beginning of this article and some facts of life as they exist in the mid-1980s. Using the British definition of insurance as "a social device whereby losses fall lightly upon the many, rather than heavily upon the few" and applying this to some field of medicine or some types of products, it is evident the "few" who have losses are too many, and the "many" who must bear these losses (premiums) are relatively few. This prevents the "device" from working as it did fifty years ago and calls for tort reform as well as social reform if costs are to again become affordable for available insurance coverage.

HOW BUSINESS HANDLES INSURANCE TODAY

*Richard H. Nuber**

The days of "photo-copy marketing"—drawing up bid specifications and sending a set to each agent who has left his business card—are gone. The insurance buyer now faces a true test of professionalism and resourcefulness to properly protect business assets, growth, and profitability.

From the smallest retailer to the largest supplier of goods or services, the problems of insurance availability and affordability are universal. These problems combined with the limited vision of many buyers can be disastrous or even fatal for many businesses.

Insurance is often perceived as the only way to deal with business risk. It is this type of tunnel vision that severely restricts the chance of a business' economic survival in the marketplace. In reality, insurance is only one of several options available to reduce financial risk. A prudent insurance buyer will evaluate his operation and his options and chart a path to achieve the greatest positive impact to the year-end financial statement—a delicate but attainable balance.

The first step for a potential buyer is to reacquaint himself with his business operations. Sure, he knows the evolutionary development of his company, its activities, growth patterns, procedures, and work flow. He is well versed on the profitability of the business' various segments. This is, however, a subjective image of the company. Its history, current operations, and projected growth must be viewed in light of the risk of financial loss produced. From this evaluation, an objective profile of the business can be developed.

In practical application, a buyer should determine the causes of loss frequency and severity. These problems are most likely attributable to:

(1) Lack of managerial commitment
(2) Lack of supervisory involvement (Note: Safety is a line management responsibility)
(3) Rapid growth
(4) Non-existent or inadequate training
(5) Facility or equipment maintenance problems
(6) Ineffective loss control/prevention program
(7) Failure to establish program objectives and measure performance

A careful evaluation of a business' loss history will identify areas of concern. This information, combined with a good working knowledge of the company, should reveal the underlying sources of many losses. Corrective action can then be taken to reduce or eliminate these exposures to loss. This action represents one very viable alternative for treatment of risk.

When planning for future growth, a potential buyer should consider the impact of these plans on his insurability. Could the risks inherent to this growth be eliminated? Each of the following questions relates to alternative methods of risk treatment and should also be considered for existing operations.

Existing Operations/Proposed Expansion

- Through careful contract design, can the risk or burden of insurance be assigned to another party to the contract?
- Are the most hazardous aspects of the operation essential to its success and, if so, will sufficient profit be generated to offset the risk produced? If not, can this segment be contracted out to another firm? Is insurance available for such a venture at an equitable price in relation to anticipated profits?
- By designing and implementing rigid procedures and controls, can the risk of financial loss be adequately restricted to eliminate the need for insurance or at least the need for first dollar coverage?

Acquisitions/Mergers

- Is the existing firm's insurance adequate to cover all outstanding claims?
- What is the effect of the company's claims that are incurred but not reported?
- What is the potential financial impact of outstanding premium audits or loss-sensitive rating plans?
- What risks are being assumed through existing contracts?
- What litigation is pending?
- Is existing coverage on a claims-made form and, if so, is an extended reporting provision or tail coverage available?

**President, Hyde Insurance Agency, Inc., Memphis, Tennessee.*

- Do current suppliers of products and services as well as tenants and/or landlords provide adequate evidence of insurance?
- Are existing employee benefit plans adequately funded and insured?
- Is the discovery period of fidelity coverage adequate?
- How long does fidelity coverage continue on terminated employees?
- Is the operation in compliance with all OSHA, EPA, and Motor Carrier Act requirements?

Regardless of the size of a business, the information developed from a thorough review of company operations will help management employ the **basic techniques of Risk Management—avoidance, transfer, assumption, and prevention.**

Upon completion of this evaluation, the dynamic risks which remain and which could severely impair the bottom line financials should be insured. A buyer can now determine how to properly handle the risks his business faces. A traditional insurance program is only one of many options available. Listed below are other risk funding variations:

Self-insurance is a somewhat misleading term. Broad in scope, it encompasses everything from complex loss funding plans, to captive insurance operations, to use of simple deductibles. All businesses are engaged in self-insurance to some degree. When insurance costs become prohibitive to buying coverage needed, deductibles to a painful level are preferable to doing without vital insurance protection. A large retained risk may hurt, but an uninsured claim can kill.

Caution must be exercised when considering any type of self-insured retention (SIR) as opposed to the traditional deductible. Deductibles are a part of the insurance program, and the insurance carrier is responsible for loss settlement and payment. On the other hand, the business that uses an SIR is designated as the primary carrier and as such may bear claims settlement responsibilities. The expense and burden incurred in claims administration can be substantial.

A *captive insurance* company is only feasible for very large, complex operations. It gives corporations a direct line to reinsurers. However, risk-bearing capacity is not impaired. Generally, neither premiums paid nor retained reserves are tax deductible.

The formation of *group captives* gives the smaller business access to alternative risk funding. This concept has been developed by groups such as trade associations to develop risk-bearing capacity and premium tax credits for their membership.

A *risk retention group*, as allowed by the federal Risk Retention Act, provides businesses with a means of forming their own captive insurers, free from state regulation. To be acceptable, products liability must account for at least half the coverage.

Insurance is pre-loss funding. Post-loss funding can be achieved through a *line of credit*. This is not widely used because of its cost (perhaps 1.0 to 1.5 percent of the amount, whether or not it is used) and the fact that the additional risk-bearing capacity is limited to the amount of debt the insured could repay over the years needed to amortize the loans. Also, a line of credit shows as a liability on the balance sheet; insured liabilities are "off the books."

A good agent or broker can be an invaluable ally. A broker/agent need not be a large firm, though size helps if all else is equal. The firm should be familiar with the London market, U.S. insurance exchanges, and surplus line firms, as well as most local insurers.

Whether a potential buyer asks for price quotations on specified coverage or simply interviews the brokerage firm's principals is a matter of judgment. If several brokerage firms are interviewed, the most attention should be paid to the *individual* who will service the account. All firms should be given a summary of the business' situation. They should be shown annual reports and as much background on the company as is feasible. Brokers should explain how they will go about handling and marketing the company's account. A buyer should determine what distinguishes a firm from its competition and should assess the firm's technical personnel in fields he considers important.

An indication of how a brokerage firm will charge may be helpful. A fee in lieu of commission might be appropriate. Reimbursement by commission on insurance sold is not a good measure of work expended on large or complex accounts, but may be appropriate for smaller companies. Especially today, when non-insurance solutions are important, compensation based only on insurance can create adverse conflicts of interest by rewarding the broker only for an insurance solution.

A marketing plan can now be developed. Due to the state of the insurance industry, it is not a buyer's market. A sound strategy is essential. The information submitted to the underwriter, who determines a company's ultimate insurability and cost, is often the *only* perception he has of the quality of the business and management's attitude toward its safe operation.

An agent or broker should work with a company to develop a professional marketing package. Depending on the size of the business, this process should begin at least six months prior to renewal. This will afford management time to implement any additional loss control measures needed to enhance its negotiating position, consider loss-sensitive rating plans that may be offered, and specify any limitations on the financial rating of the companies that are allowed to quote on the account. A liberal timetable will give the agent(s) time to develop the additional information required by each carrier, carefully analyze the claims-made versus occurrence problem with liability and umbrella policies, and agree with the broker on what provisions to request.

In spite of a potential buyer's thoroughness, underwriters will inevitably bring up additional issues. This will give the buyer an opportunity to demonstrate his cooperation and willingness to work with the underwriters for their mutual well-being.

Timing is another key issue. Since January and July are common expiration dates for many commercial insurance programs, it would be in a company's best interest to structure coverage to renew at another time. Accounts renewing at less popular dates will be more likely to receive fair underwriting consideration. Also, renewals early in the year have access to greater capacity as insurers have not yet filled their premium quotas.

Upon completion, the submission should contain a narrative of a company's operations—past, present, and future—a detailed 5-10 year loss history, an analysis of those losses and corrective action taken, financial report, brochures if available, and completed applications. A fact sheet listing construction, age, and condition of property to be covered, pertinent data on security measures, hiring and training procedures, and management's experience and expertise will also prove beneficial. Include as much material as might be useful, but don't overwhelm the underwriter. The material should be organized for easy understanding.

Keep in mind the objective: to secure a favorable response. Make it easy for the underwriter. Be complete, showing both good and bad elements, but use a positive approach. Where there are shortcomings or poor loss figures, show how they will be overcome or changed.

If a buyer submits his account and all subsequent information in a timely manner, he should expect the same in return. A buyer should specify the date by which he must have a written proposal of costs and coverages. Adequate time should be allowed to compare protection, services, rating structure, and premium financing alternatives. If a carrier cannot respond to a timely pricing request, it is logical to assume that the same inefficiencies could carry over into other areas of service such as claims. Scenario: If a carrier is slow to take a company's money, it will be slow to give it back.

By now, a potential buyer has made a substantial investment of time in his business insurance program. It should be obvious that this decision and his responsibilities involve much more than consideration of the bottom-line premium outlay. The stewardship of his company's assets and the safety of its employees, customers, and public are at stake.

Prior to reviewing the proposals, a buyer should establish his own criteria for program performance:

(1) Coverage for catastrophe losses
(2) Sound, responsive claims and loss control
(3) Coverage and pricing creativity
(4) Financial stability
(5) Overall responsiveness and flexibility

Insurance is an industry of cycles and, as such, it is very easy for a buyer to make a short-sighted decision. He should select a program with the professionals to back it through all extremes of market gyrations. Certainly, front-end costs are to be considered, but a buyer should not allow the **long-term economic health of his business to be sacrificed to the lowest bidder.**

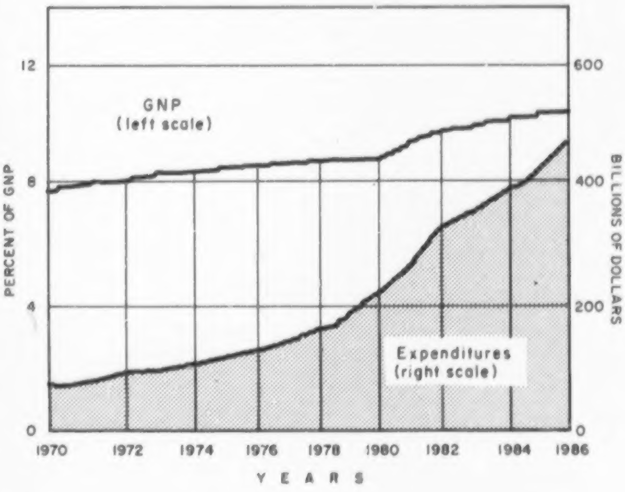
COST CONTAINMENT FOR THE 80s

*Jeffrey R. Perkins**

The cost of quality health care is a problem that has come under great debate during the past fifteen years. During the period, health care expenditures increased alarmingly. In 1960, the cost of health care was 5.3 percent of Gross National Product (GNP). By 1980, this figure had risen to 9.4 percent of GNP, or $247 billion. These costs have not abated. The 1985 annual report of the Health and Human Services Department said $425 billion was spent for health care in the U.S. in 1985. This represented 10.7 percent of total Gross National Product for that year. (See Figure 1.)

Figure 1

NATIONAL HEALTH CARE, 1970-1986: EXPENDITURES AND PERCENT OF GNP



Source: Simon Francis, U.S. Industrial Outlook 1986: Health and Medical Services, U.S. Department of Commerce, January 1986 (as reprinted in Medical Benefits, January 28, 1986, pp. 6-7).

Causes for the increase have been debated: new and expanded technology, increased demand from the consumer, third-party (government, Blue Cross, and commercial insurance company) reimbursement mechanisms, and the fee-for-service system. Other causes just as important include an aging population and an overall lack of economic incentives for cost effectiveness by any of the participants, providers (physicians and hospitals) or consumers. In addition, and quite likely a result, traditional marketing forces do not seem to be a part of health care delivery.

As a regional medical referral center, Memphis is not immune to the problem. And, because the city is not immune, much has happened in the marketplace. This article reviews (1) the problem of cost containment, (2) what is happening in the Memphis health benefits marketplace in reaction to the problem, and (3) the effects on employers.

The marketplace in Memphis has been in what this author terms a chaotic period. Insurance companies routinely gave 40.0 to 60.0 percent rate increases during the period from 1982 to 1985. In addition, many insurance companies have limited the minimum size employer to 25 or 50 employees. By the time of this writing, at least eight insurance company offices had either closed and moved their operations to another city or had totally ceased attempting to do business in Memphis.

There has been much conjecture as to why the companies chose to do this. Several of the reasons suggested included a lack of concern for insurance company loyalty by both purchasers (employers) and insurance brokers—that only price, not service was a consideration; the overall market share and thrust of Blue Cross and Blue Shield; and the alarming increase in costs in the area due to indigent care and the large number of major care cases being treated. A representative of a major insurance company told this author that in 1984 his company felt Memphis had the *highest cost increase rate* of any metropolitan area in the country.

Fortunately, national concerns over health care cost increases have received more than just "lip service." Concrete efforts at resolving the problem have begun. And, as the U.S. heads into the second half of the decade, much is now happening in the marketplace, not only on a national basis, but in Memphis as well.

Health Maintenance Organizations (HMOs) have become a viable alternative to the traditional indemnity

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plan. These have spawned a hybrid called Preferred Provider Organizations (PPOs). Design changes in indemnity plans (major medical) have encouraged a changed emphasis from in-patient care to seemingly more cost-effective out-patient care. Physician and hospital accountability has become much more prevalent with the use of utilization review/management. Employee communication to emphasize more cost-efficient utilization has become useful. In addition, employers have been grouping together into coalitions on the premise that a group of employers can have more effect together than each can have individually. Each of the areas has had an effect.

HMOs

The government had a profound effect on the growth of the health maintenance organization with the HMO Act of 1974. In December 1971, there were 39 HMOs with a combined enrollment of approximately 3.1 million persons. By 1976, the number of plans had quadrupled while enrollment had doubled. This could have been indicative of the number of new plans that had recently come into existence. However, the tremendous growth of HMOs has continued. In August 1985, there were 431 plans with an enrollment of 16 million individuals. (See Table 1.)

Table 1
GROWTH IN HEALTH MAINTENANCE ORGANIZATIONS (HMOs), 1971-1985

Date	Number of Prepaid Plans	Enrollment (Millions)
December 1971	39	3.1
June 1976	175	6.0
June 1978	198	7.3
June 1979	215	8.2
June 1981	243	10.3
December 1982	269	11.6
April 1984	326	13.6
August 1985	431	16.0

Source: Simon Francis, *U.S. Industrial Outlook 1986: Health and Medical Services*, U.S. Department of Commerce, January 1986 (as reprinted in *Medical Benefits*, January 28, 1986, pp. 6-7).

Basically an HMO is a group of physicians and/or hospitals (providers) that contractually agrees to provide certain benefits and care for a pre-agreed price, usually a monthly "premium," comparable to the premium paid in an indemnity plan. This type plan is often called a prepaid plan. The benefits furnished by these plans are often quite different from those provided by an indemnity plan. As the name indicates, an HMO often attempts to "maintain good health" rather than simply providing benefits when an individual becomes ill. This maintenance often includes routine physicals for persons of all ages and preventive medication such as innoculations for young children.

There are two major types of HMOs. The first type is the closed panel model, which usually involves a "clinic site" approach. An HMO member goes to a physical place for the rendering of care and receives the care from one of the physicians actually employed by the HMO. The physicians are routinely on a salary, with potential bonuses based on utilization of the HMO members. Hospital care is normally limited to institutions which contractually agree to the HMO requirements. The number of these institutions is usually very limited.

The second common type of HMO is the IPA model, or individual practice association. This type HMO normally involves a group of physicians who agree to provide services, again on a prepaid basis, but they are reimbursed on a fee-for-service basis, i.e., they receive payment each time they furnish care. This is compared to the salaried approach utilized by the closed panel. While there are contractual agreements with hospitals, the hospitals are usually the ones at which the physicians normally practice. Therefore, more hospitals are usually part of the IPA model HMO than the closed panel model.

Both models are operational in Memphis. PruCare, a subsidiary of the Prudential Life Insurance Company, is a closed panel HMO. It has clinic locations in East Memphis, Whitehaven, and Raleigh. PruCare's hospital agreements are presently with Baptist East and LeBonheur Children's Medical Center. A story in the *Commercial Appeal* early last year indicated PruCare had increased its enrollment 34.0 percent during 1984 to 20,800 enrollees (*Commercial Appeal*, 1/13/85). An IPA type model is the IPA Apple Plan sponsored by Blue Cross and Blue Shield of Memphis. There are approximately 600 physicians in Shelby County who participate in the plan. Most of the area hospitals are on contract with the IPA.

A relatively new addition to the HMO market in Memphis is Volunteer Health Plans, an IPA model based in Nashville. This plan is just beginning its marketing efforts, having signed its first clients effective July 1, 1986. Another new HMO in the area is called Medicare & More, a prepaid IPA type plan, also sponsored by Blue Cross for individuals age 65 or older. Approximately 300 physicians are participating in this plan. Interestingly, the hospitals contracting with Medicare & More are Methodist Hospitals of Memphis and Methodist Hospital of Somerville as compared to the IPA Apple Plan which utilizes most of the hospitals in Memphis. A group of Shelby County physicians has formed Physicians Health Plan of the Mid-South, an IPA model HMO. CoMed Management, Inc., of Dublin, Ohio, has been hired to administer the group. The plan was designed to service the greater Memphis area. It also is just beginning its marketing activities to local physicians.

PPOs

Earlier in the decade, there was much discussion about the real effect HMOs were having on reducing medical costs. While most of the studies indicated a reduction in admission days per thousand people for HMO members as compared to the general population, there was some indication that this lower rate was due to a younger, healthier group joining HMOs. Therefore, the savings were due to the demographics of the group, and the resulting lower utilization, rather than the cost-containment efforts of the HMOs. (While the "jury may still be out" as to the validity of this claim, there is no question that based on a general review of the research done, HMOs do have a lower admission rate per thousand than the general public.) In addition, physicians were becoming openly concerned about the long-term effects HMOs might have on the fee-for-service standard for the delivery of care.

Competition was also becoming a factor in the medical marketplace. Fostered by the growth of HMOs, limits on Medicaid and Medicare reimbursement, and more sophisticated employer purchasers, market forces began affecting the marketplace. There is an oversupply of providers in the U.S., as well as locally. A recent study concerning physician surpluses illustrated that for expected physician requirements in 1990, all but 6 of the 21 specialties described would have a surplus (Lewitt, 1982, pp. 10-11). Another study on hospital bed usage indicated in-patient days peaked in 1975, and by 1978 had declined by 2.4 percent (Goldsmith, 1981, p. 16). Memphis is said to have double the number of beds required to service its population. This oversupply is a factor in the growth of competition.

PPOs—preferred provider organizations—began to flourish in 1983. The term organization is somewhat of a misnomer, however. A PPO is more of a concept than necessarily a physical entity. Basically, a PPO is a contractual agreement between an employer and health care providers for the provision of medical care to employees and their dependents. This contract can be put together on a direct basis, through a third party such as a broker, or through an insurance company arrangement.

The advantage of the plan to the employer is that he can attempt to get control of costs by utilizing "cost-effective" providers and integrating extensive utilization management procedures. In addition, providers often furnish fee discounts to the insuring company or employer-payor. In turn, the employer usually provides some type of incentive, usually through plan design by lowering deductibles and co-payments, if employees utilize the preferred providers. This should increase patient volume for the providers.

In Memphis, insurance company involvement with PPOs has become paramount. Presently, several hospitals are actively participating in PPOs. Baptist Memorial, in a joint venture with Baptist staff physicians, has developed the HealthMark plan which is marketed to area employers. However, the hospital has also contracted with three insurance companies—Aetna, Northbrook Life, and Pilot Life—to provide the medical care necessary for the insurance plan. These plans are being distributed by the insurance companies rather than the hospital. The providers in the insurance company plans are acting as the "preferred providers" as opposed to marketing the services. The marketing director of HealthMark says that more than half their clients are received through insurance company arrangements. "Our future is with the insurance company relationships. The Memphis employer marketplace is heavily weighted towards employers with less than 150 employees. This size employer usually purchases a fully insured plan and the insurance company marketing efforts can more easily access and service this marketplace than we are able."

Methodist Health Systems, in a joint arrangement with a physicians group called MetroCare, also has an alternate delivery system (ADS, a.k.a. HMO/PPO) organization called Health Choice. However, according to the system vice-president, they are attempting to fully utilize the insurance marketplace. Health Choice has contracted with Blue Cross and Blue Shield of Memphis, Provident Life and Accident, and Protective Life. Blue Cross (with the Preferred Care Plan which is administered by Southern Health Plan, a subsidiary of Blue Cross) and Provident (using the name Provident Preferred PPO, which is administered by Healthpoint Preferred, a subsidiary of Provident) utilize Methodist and MetroCare as preferred providers. The insurance companies seem to prefer their own plans rather than making any reference to Health Choice. It appears these relationships can work for the employer. The manager of the local Provident office indicated that their PPOs in other parts of the country had realized as much as a 20.0 percent savings for customers, and they fully expect the Provident Preferred PPO to have similar results for customers in Memphis.

LeBonheur Children's Medical Center is participating in the PPO relationships that have been established. Having a unique niche in the marketplace with their delivery of care directed to the children of the area, it is the author's opinion that their participation would be necessary for the long-term success of any PPO arrangement.

Plan Design

Much has been done in the area of plan design, including consumer financial participation with deductibles and co-payments. Other plan changes have included attempts to get employees to use a lower cost setting, such as utilizing out-patient care when it can appropriately replace in-patient care. Examples could include paying out-patient surgery (a surgical procedure performed in either a doctor's office, in the out-patient department of a hospital, or a new concept, a free-standing surgical center) at 100.0 percent, while in-patient surgery would be paid at 80.0 percent. Pre-admission testing for routine tests required before admission to a hospital, when performed on an out-patient basis, would likewise be paid at 100.0 percent as opposed to the normal 80.0 percent. The purpose of these changes is an attempt to reduce the number of potentially unnecessary days in the hospital.

Second opinion on surgery is another popular cost-containment measure. The original design of the benefit usually paid 100.0 percent of the cost incurred by an individual, who had a diagnosis for surgery, in getting a second opinion from another independent physician. Recently, insurance companies have narrowed the list of surgeries to 16 to 20 procedures which have been identified as those on which they feel second opinions can have the greatest effect.

Other plan design benefits include providing home health and hospice care. Historically, these items have been excluded benefits in an insurance plan. However, there are indications that, when appropriately controlled, the lower cost setting, as compared to the in-patient setting, can have a definite positive effect on cost containment.

Preventive maintenance, a standard benefit in most HMO plans, could potentially be a cost containment measure. Early detection has been offered as a way to reduce the cost of health care. Lifestyle has also been discussed. The American Heart Association contends that we can control 90.0 percent of our lifestyle, which can have a positive effect on our health. The prospects of the success of a change in lifestyle are beyond the scope of this article, but the potential is extremely encouraging.

Accountability

One of the major concerns payors have had about the medical community has been the lack of accountability of providers. The training and experience of medical professionals normally go far beyond the average consumer's comprehension. In addition, the consumer's desire has been to receive the "best" health care without regard for cost. These attitudes resulted in providers furnishing care without regard for the financial consequences. With so many individuals having insurance and "someone else paying the bill," accountability of expenditures has not been a concern. This attitude is changing.

A relatively new concept has emerged in the health benefits marketplace—the concept of utilization management. The forerunner of this process was the peer review organization (PRO), which was physicians reviewing the care provided by other physicians. This process was usually done in conjunction with Medicare, but independent companies have begun utilizing this review process, which has expanded greatly.

Utilization management is a method of monitoring an individual through the medical care process. Several of the procedures performed include pre-admission certification, concurrent/continued stay review, and discharge planning. Pre-admission certification (PAC) is a procedure for identifying the medical necessity for and length of stay of a particular hospital admission. Concurrent/continued stay review is done to assure that the hospital stay continues to be necessary and that discharge orders, when appropriate, are written and the individual is discharged. Discharge planning is the process of identifying the lowest cost setting an individual can use at the termination of a hospital stay and still maintain a high quality of care. For example, if home health care is appropriate, it would be advantageous from a cost perspective to discharge the individual and have continued recuperation at home.

This is a simplified explanation of the procedures; there are others which can be performed. However, additional information on these services can be provided by the vendors of the services. Most insurance companies have a utilization management program. Several vendors that provide these services include IntraCorp, CostCare, and Health Care Compare. There are many others. Locally, the Memphis Business Group on Health is in the final stages of developing a pre-admission certification program for its members and outside businesses.

It is the author's opinion that pre-admission certification is the single most effective cost-containment measure presently available. All HMOs and PPOs incorporate PAC into their health care management processes, and many employers are either actively participating in or are considering it.

The process has, however, received a great deal of negative publicity because the perception is that a third party is "practicing medicine" and the attending physician should know more about the patient's condition than the third party. There is no question this should be true. However, PAC is not designed as an attempt to practice medicine, but rather as a procedure for making the providers accountable for their actions and for assuring that an individual should be in the hospital or discharged when appropriate. It is the first process where an independent third party has been able to review the medicine a provider is practicing. Payors have been paying many of the bills for the last twenty years, and it is apparent they now want to at least have the opportunity to review how their money is being spent. The process remains a major issue, and only time will tell how much acceptance it receives.

Employee Communication

Crucial to the success of any cost-containment method is the effective communication of the process to employees and dependents. Without an adequate understanding of the measures being instituted, an employee may not comprehend his or her responsibilities. This could result in a higher cost than if nothing had been done.

The intricacies of benefit plans are complex, even for individuals who are experienced in dealing with the plans. Obviously, for an individual whose only exposure to a health benefits plan(s) is when it is used, comprehension is minimal at best. Therefore, the employer has a responsibility to the employee, as well as to the success of any cost-containment measure, to assure as comprehensive an employee communication program as possible.

The process of communication can be extremely complicated. While the process can involve just a simple typewritten sheet explaining the benefits, it is often much more complex. The author recommends that the process be performed by professionals. Most insurance company plans have extensive communication materials available. Utilize them. In addition, there are many third-party employee communication firms in existence. However, the cost of a third-party program can be expensive. Therefore, it is important that cost versus benefits be reviewed before any independent programs are put in place.

Employer Coalitions

Over the last several years, employers have been joining together in an attempt to affect health care costs collectively. The recent growth in these groups has been tremendous. From 1980 to 1984, the number of coalitions grew over 70.0 percent to 130 groups.

The purposes of the coalitions are very diverse. Some use the coalition as an information gathering/sharing forum, while others form their own ADS organizations and collectively contract with a particular group of providers.

An example of an aggressive group is the San Diego Employer Health Cost Coalition. According to a past chairman of the coalition, the group has undertaken seven major projects including the development of its own PPO (*FAH Review*, Jan./Feb., 1984, pp. 35-36). Memphis has a local group called the Memphis Business Group on Health (MBGH). There are presently 18 members participating in the group including Federal Express and Malone and Hyde. As earlier indicated, the MBGH is in the process of completing the development of a PAC program which will become effective on November 1, 1986. In addition, the group is participating in a very sophisticated information gathering process. Through a utilization management program, the group is initially looking at the outcomes of psychiatric care by local providers and closely reviewing the costs versus benefits of the care received. When the study is completed, the group will begin negotiating with area providers for the provision of mental and nervous and alcohol and drug care.

According to the executive director of the coalition, they are looking at the delivery of care in a way no other group is doing in Memphis. When their study is completed, they will be able to identify the most cost-effective providers of psychiatric care in Memphis. The group then plans to negotiate with these cost-effective providers.

The Future

What does the future hold for health benefits and the cost of providing medical care?

So much has happened over the last few years that professionals are having problems assimilating and understanding it all. The ADS arena is going through an evolutionary process that is moving so fast even the people involved are having trouble confidently predicting what may occur in the near future. Some individuals feel the prepaid plan is the health benefits approach of the future and that the provider will have to accept some, if not all, of the risk.

One possible change is that the basic health benefits plan of an employer could become a "triple option" plan. This would include the basic major medical plan, a PPO, and an HMO. This option would be provided under one insurance plan, which could be underwritten by an insurance carrier or a provider. In the recent past, large hospital chains such as Hospital Corp. of America (HCA) and Humana have formed their own insurance intermediaries. These have met with limited success at best. Some people feel that health care providers will "go back" to providing health care and contracting with insurance carriers for the provision of this care within the triple option plans.

Another process which could eventuate is called managed care. This idea is an extension of the utilization management process. Its purpose is to "follow" an individual through the process of receiving care, from first contact with a physician to the discharge of care, whether it be in a hospital setting or at home. The same resistance encountered by utilization management methods will be encountered by managed care proponents, but on a much larger scale. However, as information gathering becomes more sophisticated and more available, payors are going to begin to use negotiating tactics to bring about true accountability of the delivery of care. Managed care is, at present, considered the state-of-the-art method of accountability.

Conclusion

It is difficult to conclude this article on cost containment. The process is going through such dynamics that by the time this article is published, a new concept may have affected the marketplace. The "bottom line," however, is that all employers should make some attempt at cost containment. Examples of estimated annual savings from cost containment are presented in Table 2.

Table 2
ESTIMATED ANNUAL SAVINGS ATTAINED BY USE OF SELECTED COST CONTAINMENT

Cost Containment Feature	Percent Savings
Coordination of Benefits (COB)	9.6
Non-duplication COB	8.8
Preferred Provider Organizations	8.8
Pre-certification	8.1
Concurrent Utilization Review	6.5
Self-funding Arrangements	6.5
Case Management	5.5
Increase Deductible (Individual)	5.2
Ambulatory Surgery	4.3
HMO	2.9
Increase Co-insurance	2.6
Pre-admission Testing	2.4
Mandatory Second Opinion	2.3
Hospice Care	1.8
Second Opinion for Specific Procedures	1.5
Home Health Care	1.4
Employee Bill Auditing	0.7
Voluntary Second Opinion	0.5
Retrospective Review (Audit)	0.3

However, the changes being experienced by the health care provider are revolutionary. Changes in reimbursement, an aging population, and indigent care will all adversely affect the cost of care. Granted, patient days are declining, which is good in the short-run for the payor, but this makes survival more difficult for the provider. We will see more hospitals close. What effect will these issues have on costs, not to mention access to and, most importantly, quality of care? In the continuing efforts to contain costs, these important issues must be considered. The cost increases now trying to be controlled will pale when compared to the potential costs of caring for the indigent and aged. The need for communication between payors, providers, and governmental bodies is crucial. It is hoped these concerns will be taken into account in the attempts to contain costs in the 80s.

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BUSINESS LIABILITY INSURANCE IN 1986: CHANGES AND IMPLICATIONS

Mars A. Pertl[*]

Insurance companies are making substantial changes in the liability insurance coverages provided to business. These changes require that business owners have a new understanding of the language and coverage provisions of their policies. The terms of coverage in a policy purchased this year may differ from the terms in a policy purchased in the past. Under the new policies, business may find that some losses, previously covered, are no longer covered and that the limits of liability in the insurance policy can be exhausted. Recent problems such as the cost of litigation, long-term exposures becoming recognized (asbestos), broader interpretations of some policy provisions by the courts, and, probably, the current financial condition of the industry are blamed for the changes.

This article addresses several changes that are of particular interest to business. While in all cases the actual language of the policy purchased controls the terms of coverage, the insured should have a general understanding of the revised policies. The next section of this article briefly specifies and explains some of the changes. Then, the following section discusses the implications of the changes to business insurance planning, and the last section provides a summary and list of questions which might be of concern to all business insurance planners. Because all of the changes are not discussed here, it is important that the business carefully review its insurance program with the agent or broker providing the coverage.

Major Policy Changes

Two important policy changes are discussed in this section. First, the claims-made, the new occurrence, and the old occurrence coverages are discussed. Second, the specifications of the policy limits in the old and new policy forms are compared. Other changes which could marginally expand or limit coverage are not discussed in this article.[1]

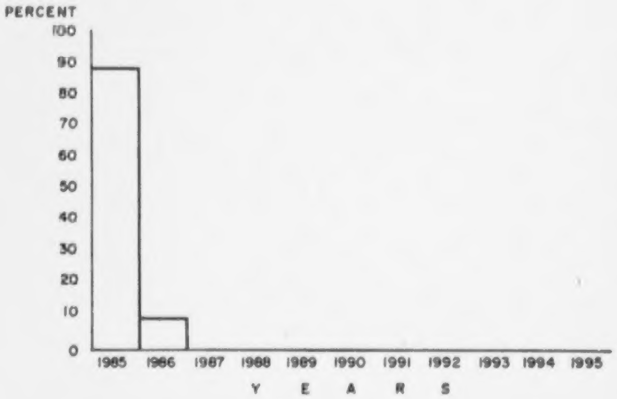
Occurrence vs. Claims-Made

The important difference between an "occurrence"-based policy and a "claims-made" policy is the set of conditions which triggers coverage under the policy. In other words, it is the set of conditions which must be met in order for the insurance to apply to the particular claim. These conditions include specifying when the event must occur and, in some cases, when the claim must be made.

Figures 1, 2, and 3 illustrate three hypothetical loss distributions. Figure 1 shows a case where 95.0 percent of the losses occurring in 1985 were reported in that same year, with 5.0 percent reported the following year. Figure 2 illustrates a case where only 60.0 percent of the losses were reported in the year in which they occurred, with 25.0 percent reported the next year, and 10.0 and 5.0 percent reported the next two years, respectively. Figure 3 shows a case where the occurrence was far removed from the filing of a claim. For example, Figure 1 could illustrate automobile physical damage, Figure 2 some business liability exposure such as products liability, and Figure 3 an exposure from occupational disease such as asbestoses. The common feature of all of the cases is that the loss occurred in 1985. The cases differ by the year in which the losses were

Figure 1

PERCENTAGE OF LOSSES OCCURRING IN 1985 BY
YEAR CLAIM REPORTED: CASE I



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MID-SOUTH ECONOMY

BUREAU OF BUSINESS & ECONOMIC RESEARCH THE FOGELMAN COLLEGE OF BUSINESS AND ECONOMICS MEMPHIS STATE UNIVERSITY

STATISTICAL SUPPLEMENT

THE MID-SOUTH ECONOMY

For the U.S. and Mid-South economies, economic activity slowed during the second quarter of 1986 but remained above year-ago levels. The nation's real Gross National Product advanced only 0.6 percent from the first quarter of 1986 but was 2.6 percent above the second quarter 1985 level. Industrial production has declined four out of the last five months, with the yearly gain virtually unchanged from last July. Durable goods manufacturing was hardest hit, declining 1.2 percent from a year ago, with non-durable goods registering a solid gain of 3.7 percent. Business equipment manufacturing fell 3.1 percent, while space and defense production climbed 3.2 percent. Moreover, August 1986 new orders for durable goods declined, offsetting the solid gain registered in July. Transportation equipment orders were the hardest hit, declining 8.4 percent, with two-thirds of the decline accounted for by the aircraft sector. Both defense and non-defense components were lower. However, since May 1986, new orders have advanced 3.7 percent and output per hour remains 1.2 percent higher. Retail sales performance has been mixed since May, but constant dollar personal consumption expenditures, a broader measure of consumer spending, remain 4.3 percent above second quarter 1985 levels. Other positive signs overshadowing the current slowdown are inflation and unemployment. Inflation remains subdued with a July over July increase of only 1.6 percent, with producer prices actually registering a decline of 2.4 percent. The unemployment rate dipped below 7.0 percent, and payroll employment grew at a compounded annual rate of 2.6 percent, just enough to match the expansion in the civilian labor force. In addition, the corporate sector is showing signs of improvement with after-tax profits 11.1 percent higher than last year.

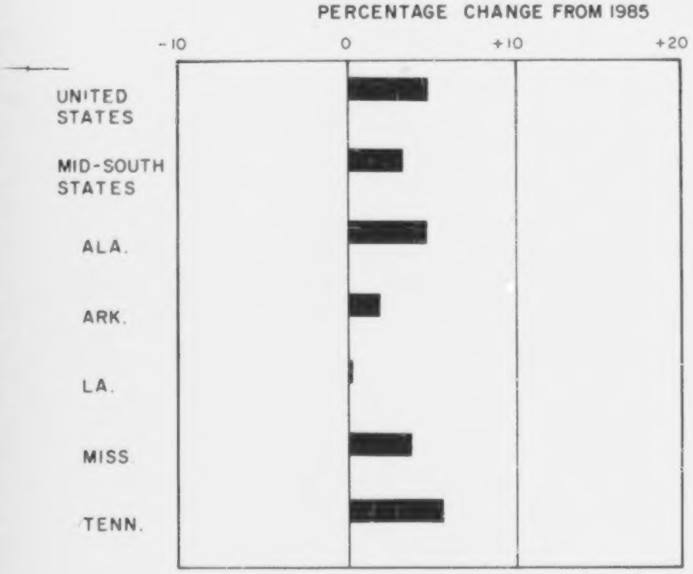
For the Mid-South, the growth in personal income has slowed, with the first quarter 1986 over first quarter 1985 gain of 3.2 percent underperforming the national gain of 4.7 percent. Tennessee and Alabama were the only Mid-South states which matched or exceeded the national gain. In addition, all the Mid-South states, except Tennessee, registered substantial increases in their respective unemployment rates. Overall, the Mid-South aggregate unemployment rate climbed to 12.1 percent, up from the 9.8 percent rate registered last July. Sales tax collections remained robust for Alabama and Tennessee, but were lackluster for Arkansas. Mississippi collections registered modest gains.

LABOR

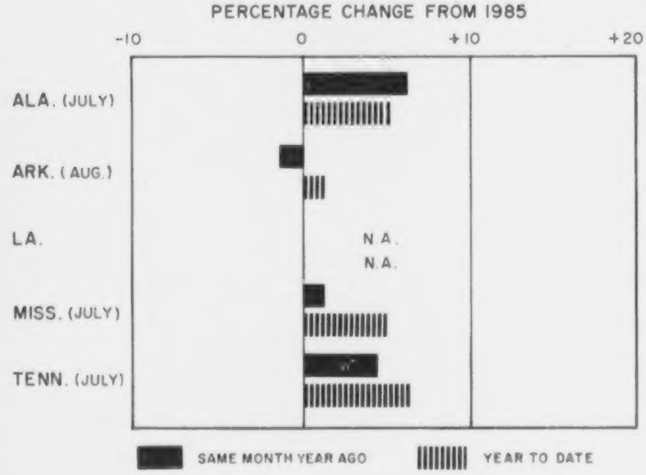
During the 43 months since the 1982 recession trough, payroll employment across the U.S. increased 11.0 million, with 7.3 million of the gain coming in the first 24 months. Only 2.7 million of the job gains took place during the past 18 months. As a result, the nation's unemployment rate has been stuck in the 6.8 to 7.5 percent range for the last two years. Moreover, much of this slowdown in jobs growth, coupled with a weakened energy and agricultural sector, has caused most of the Mid-South states to register substantial increases in their unemployment rates. The total number of persons unemployed across the Mid-South climbed 10.4 percent from year-ago levels. Manufacturing employment registered a slight decline of 0.2 percent, while non-manufacturing employment managed a moderate gain of 1.4 percent. The comparable non-manufacturing gain for the nation was 3.5 percent. Higher unemployment rates were registered in most of the Mid-South metropolitan areas except New Orleans, which experienced a slight decline to 11.3 percent. Other Mid-South MSA unemployment rates were: Memphis, 6.6 percent; Little Rock, 7.1 percent; Jackson, 8.4 percent; and Birmingham, 10.0 percent.

On the manufacturing side, substantial employment declines were registered in the electrical and electronic machinery sectors in Louisiana, Arkansas, and Mississippi. Primary metals employment fell in Mississippi, Alabama, and Arkansas. Chemical and allied products employment declined in Tennessee and Louisiana. Other losses were felt in the Tennessee apparel industry and the Alabama paper industry. Substantial employment gains were registered in the transportation equipment sectors of Mississippi, Alabama, and Tennessee. Furniture and

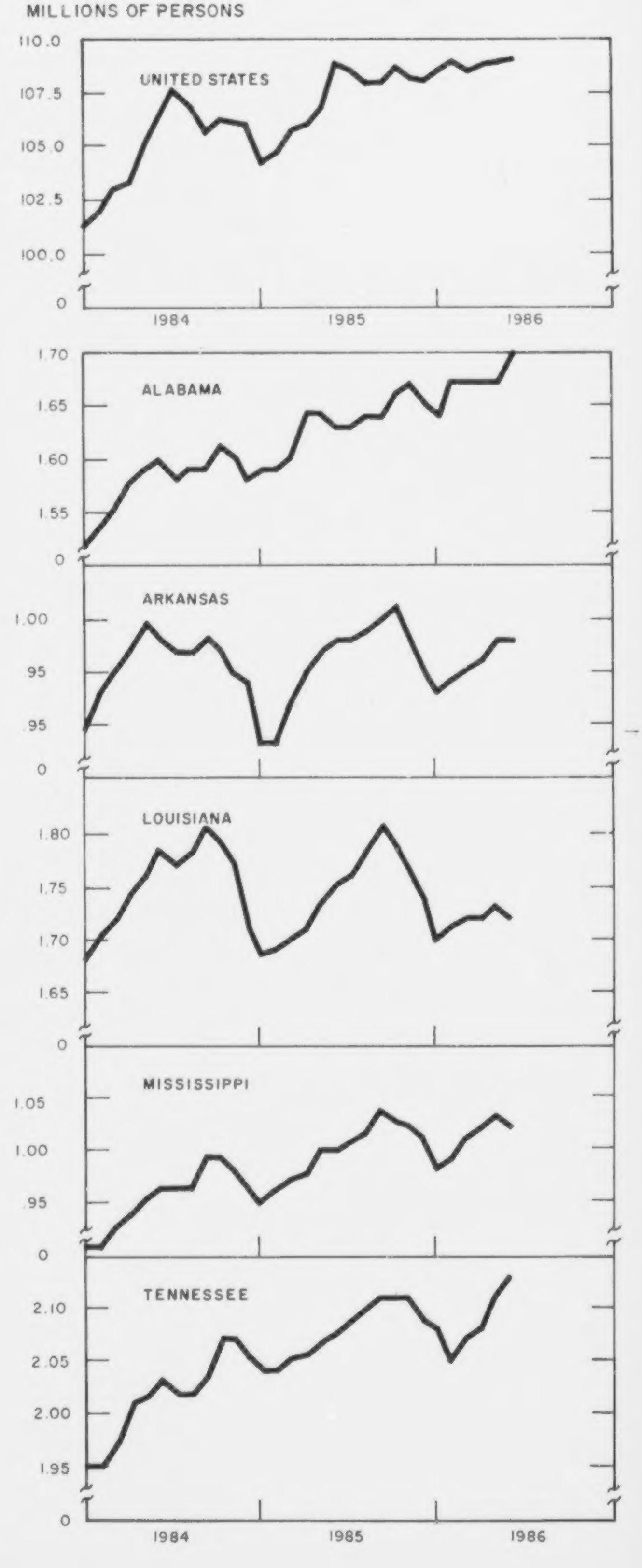
PERSONAL INCOME - I QTR. 1986



SALES TAX COLLECTIONS 1986



TOTAL EMPLOYMENT



SOURCES: BUREAU OF ECONOMIC ANALYSIS
STATE DEPARTMENTS OF EMPLOYMENT
SECURITY AND REVENUE.

LABOR JULY 1986	United States	Mid-South States				
		Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Civilian Labor Force	120,303,000	1,897,900	1,076,900	1,964,100	1,169,200	2,324,100
Percent Change Year Ago	+2.4	+ 4.2	+1.8	- 1.8	+ 2.6	+2.8
Unemployed	8,471,000	199,600	96,000	250,800	151,900	198,500
Percent Change Year Ago	-2.4	+21.8	+8.5	+ 4.2	+20.8	+4.4
Unemployment Rate						
1986	7.0	10.5	8.9	12.8	13.0	8.5
1985	7.4	9.0	8.4	12.0	11.0	8.4
Non-Agricultural Wage & Salary Employees	100,253,000*	1,448,500	816,700	1,506,100	840,500	1,924,900
Percent Change Year Ago	+2.6	+ 1.2	+2.1	- 5.3	+ 0.7	+3.4
Manufacturing Employment	19,122,000*	354,600	215,400	166,700	219,800	482,800
Percent Change Year Ago	-0.8	- 0.6	+1.2	- 6.8	- 0.3	-1.1
Non-Manufacturing Employment	81,131,000*	1,093,900	601,300	1,339,400	620,700	1,442,100
Percent Change Year Ago	+3.5	+ 1.7	+2.4	- 5.1	+ 1.0	+5.0
Average Weekly Earnings of Production Workers in Manufacturing	$390.74	$353.87	$312.35	$440.59	$290.86	$345.17
Percent Change Year Ago	+2.0	+ 2.2	+4.2	+ 2.6	+ 3.4	+2.1
Average Weekly Hours of Production Workers in Manufacturing	40.2	41.1	40.2	41.1	39.2	40.8
Percent Change Year Ago	+0.2	+ 0.9	+1.5	- 0.2	- 0.5	+0.2
Average Hourly Earnings of Production Workers in Manufacturing	$ 9.72	$ 8.61	$ 7.77	$ 10.72	$ 7.42	$ 8.46
Percent Change Year Ago	+1.8	+ 1.2	+2.6	+ 2.9	+3.9	+ 1.8

*Seasonally adjusted.

Source: Departments of Employment Security and Survey of Current Business.

fixtures employment gains were recorded in Mississippi and Tennessee. The lumber and paper industries of Louisiana registered moderate gains, with apparel and textiles registering solid gains in Arkansas and Alabama. Food and kindred products manufacturing in Arkansas recorded the largest gain of any industry in the Mid-South.

CONSTRUCTION

For the twelve months ending May 1986, total building activity across the Mid-South, as measured by the dollar value of permits issued, increased 3.8 percent despite a substantial decline in building activity in Louisiana. Residential and non-residential building activity was mixed. Louisiana and Mississippi experienced declines in residential activity, while Louisiana and Alabama registered declines in the non-residential sector. Tennessee was the only Mid-South state to show solid increases in both categories.

Construction employment in the Mid-South was also mixed. Overall, construction employment fell 3.1 percent, but Arkansas registered a solid gain of 3.9 percent, followed by smaller positive gains in Tennessee and Alabama. Both Mississippi and Louisiana recorded declines

CONSTRUCTION[1] MAY 1986	United States	Mid-South States				
		Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Total Building						
Percent Change Year Ago	+ 6.8	+ 8.7	N.A.	-22.9	+ 6.3	+26.6
Residential Building						
Percent Change Year Ago	+17.4	+27.5	N.A.	-19.6	- 4.9	+30.0
Non-Residential Building[2]						
Percent Change Year Ago	- 5.6	- 4.8	N.A.	-25.3	+22.8	+21.9
Total Dwelling Unit						
Percent Change Year Ago	+ 8.3	+16.5	N.A.	-30.9	- 5.9	+ 7.1

[1] Twelve-month cumulative rate.

[2] Non-residential data exclude the cost of construction for publicly-owned buildings.

Source: The Federal Reserve Bank of Atlanta from data supplied by the Bureau of Census.

in construction employment; Louisiana was the hardest hit with a decline of 11.6 percent from year-ago levels.

HOUSING (SHELBY COUNTY)

All indicators of housing activity in Shelby County during second quarter 1986 showed continued growth in new single-family home building and a decline in the growth of multi-family dwellings.

Total residential permits issued declined by 51.9 percent during the period, which can be attributed to a large decline in apartment permits issued. However, single-family and duplex permits continued to increase.

The trend in total residential starts was similar to that in residential permits with a 37.4 percent aggregate decline. This decrease was primarily due to an 85.8 percent decline in apartment starts. Single-family starts increased 51.2 percent, and duplex starts doubled from their 1985 level. This growth can largely be attributed to favorable interest rates attracting home buyers to Shelby County.

Sales of new single-family homes increased during second quarter 1986 to 765 units, or 33.5 percent. Condominium sales also recorded an increase, and on a year-to-date basis were 16.6 percent above their 1985 level.

The average sales price of new single-family homes sold during second quarter 1986 was $102,131. This represented a 5.4 percent increase from the same period last year. Average condominium sales prices also increased during the period to $58,555—a 16.6 percent increase over second quarter 1985 prices.

Real estate transfers increased 7.6 percent during the second quarter of 1986 compared to the same period in 1985. The dollar amount, however, declined by 7.8 percent to a total of $459.3 million. The 340 mortgage foreclosures during the quarter represented an increase of 5.0 percent over second quarter 1985.

Building permits in the incorporated portions of Shelby County (excluding Memphis and Germantown) were issued for 227 units during second quarter 1986, with Collierville and Bartlett containing the largest portion of residential activity.

The inventory of both completed and uncompleted homes in Shelby County reflects a very active and growing new home market in Shelby County.

The number of housing units sold through second quarter 1986 totaled 4,554 compared to 4,098 units sold during the same period in 1985, an increase of 11.1 percent. The average selling price of all units sold in Shelby County during second quarter 1986 was $69,876.

FINANCE	United States	Mid-South States	Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Member Banks as of Percent Change from Comparable Date 1985	CHANGE IN DATA REPORTING FORMAT. NO COMPARABLE DATA AVAILABLE FOR THIS REPORT.						
Total Deposits Demand Deposits Time Deposits Savings Deposits							

Source: The Federal Reserve Bank of St. Louis and the Federal Reserve Bank of Atlanta.

SAVINGS AND LOAN ACTIVITY	Alabama	Arkansas	Louisiana	Mississippi	Tennessee[1]
Mortgage Loans Made (millions) Percent Change Year Ago Percent Change Year-to-Date	CHANGE IN DATA REPORTING FORMAT. NO COMPARABLE DATA AVAILABLE FOR THIS REPORT.				

[1] Figures are for total loans made.

Source: Federal Home Loan Banks of Little Rock, Cincinnati, and Atlanta.

Table 1

SHELBY COUNTY HOUSING INDICATORS, SECOND QUARTER, 1985-1986

Items	Second Quarter 1986	Second Quarter 1985	Year-to-Date 1986	Year-to-Date 1985	Percent Change Year-to-Date 1986 From Year-to-Date 1985
NEW RESIDENTIAL UNITS					
Total Permits Issued[1]	1,191	5,202	3,531	7,346	- 51.9
Single-Family	1,084	975	1,943	1,884	+ 3.1
Duplex	14	6	14	8	+ 75.0
Apartments[2]	93	4,221	1,574	5,454	- 71.1
Total Starts[1]	1,380	2,820	2,281	3,644	- 37.4
Single-Family	1,256	696	1,935	1,280	+ 51.2
Duplex	8	6	12	6	+ 100.0
Apartments[2]	116	2,118	334	2,358	- 85.8
Sales Closed					
Single-Family (New)	765	588	1,426	1,068	+ 33.5
Condominium	39	138	75	399	- 81.2
Average Sales Price					
Single-Family (New)	$102,131	$96,549	$99,063	$94,020	+ 5.4
Condominium	58,555	56,102	60,919	52,230	+ 16.6
REAL ESTATE TRANSFERS					
Number	5,638	5,196	10,225	9,500	+ 7.6
Amount (000)	$459,254	$501,358	$829,684	$900,638	- 7.8
NUMBER OF MORTGAGE FORECLOSURES	340	403	756	720	+ 5.0

[1] Expressed in number of dwelling units.

[2] Apartments include condominiums and townhouses.

Table 2

RESIDENTIAL BUILDING PERMITS AND STARTS, INCORPORATED AREAS (EXCLUDING MEMPHIS AND GERMANTOWN)[1] IN SHELBY COUNTY, SECOND QUARTER, 1986

Area	Permits			Starts		
	Single-Family	Duplex[2]	Apartments[2]	Single-Family	Duplex[2]	Apartments[2]
Bartlett	74	--	--	74	--	--
Arlington	4	2	--	4	2	--
Millington	--	--	24	--	--	24
Collierville	81	--	35	81	--	35
Lakeland	7	--	--	6	--	--
Total	166	2	59	165	2	59

[1] Due to local government consolidation between Memphis and Shelby County, residential permits and starts cannot be separately identified for the municipalities of Memphis and Germantown. The statistical data for these two municipalities are included in the data for unincorporated Shelby County.

[2] Number of dwelling units.

Table 3

INVENTORY OF UNSOLD SINGLE-FAMILY HOUSING UNDER CONSTRUCTION AND NEW HOUSING, SHELBY COUNTY, TENNESSEE, SECOND QUARTER 1986

	Summary of Uncompleted Houses						Summary of Completed Houses					
	Days Since First Inspection						Days Since Final Inspection					
Square Feet	<30	30-60	60-90	90-180	>180	Total	<30	30-60	60-90	90-180	>180	Total
Under 1,000	3	7	3	13	42	68	1	3	--	--	51	55
1,000 - 2,000	23	12	9	39	49	132	4	--	4	--	45	53
1,200 - 1,400	57	38	27	49	86	257	6	4	7	4	71	92
1,400 - 1,600	36	36	37	54	96	259	10	11	13	3	96	133
1,600 - 1,800	29	32	39	44	68	212	6	4	10	--	47	67
1,800 - 2,000	28	45	50	46	75	244	5	5	8	5	38	61
2,000 - 2,200	30	51	40	65	92	278	2	1	3	7	37	50
2,200 - 2,400	25	55	45	56	78	259	7	1	1	1	33	43
2,400 - 2,600	35	72	51	57	65	300	4	--	3	4	41	52
2,600 - 2,800	25	40	19	42	64	190	1	--	3	--	25	29
2,800 - 3,000	19	17	18	27	41	122	2	1	2	2	20	27
3,000 - 3,200	12	23	13	22	29	99	1	1	--	--	19	21
3,200 - 3,400	11	14	10	20	32	87	2	1	--	1	17	21
3,400 - 3,600	8	5	4	10	28	55	--	1	1	--	17	19
3,600 - 3,800	5	4	5	8	21	43	--	--	--	3	15	18
3,800 - 4,000	4	5	8	11	20	48	--	--	--	--	12	12
Over 4,000	31	17	20	16	124	208	--	1	3	3	43	50
Total	381	473	398	579	1,030	2,861	51	34	58	33	627	803

Source: K. William Chandler, Housing Inventory.

Table 4

SALES OF EXISTING AND NEW SINGLE-FAMILY RESIDENTIAL UNITS AND DUPLEXES, MEMPHIS AND SHELBY COUNTY, TENNESSEE, SECOND QUARTER, 1968-1986, AND ANNUAL SUMMARY, 1968-1986

	Total Dollar Volume All Price Ranges (Millions)		Number of Units Sold		Average Sale Prices All Units	
Year	2nd Quarter	Annual	2nd Quarter	Annual	2nd Quarter	Annual
1968	$ 48.0	$ 187.8	2,992	11,517	$16,050	$16,306
1969	54.0	204.8	3,102	11,851	17,653	17,281
1970	49.0	201.1	2,730	11,264	17,965	17,853
1971	70.7	273.1	3,525	13,727	20,061	19,895
1972	93.0	N/A	4,218	N/A	27,039	N/A
1973	112.0	396.3	4,285	15,278	26,145	25,939
1974	125.6	395.0	4,250	13,789	29,554	28,646
1975	109.6	401.6	3,563	12,942	30,756	31,031
1976	130.1	493.7	3,990	14,985	32,607	32,946
1977	169.3	537.5	4,674	14,700	36,222	36,565
1978	198.4	739.4	4,935	18,359	40,203	40,274
1979	223.0	819.3	4,991	18,371	44,680	44,597
1980	150.8	739.7	3,182	15,248	47,392	48,511
1981	177.5	605.1	3,402	11,455	52,175	52,824
1982	134.1	518.7	2,418	9,590	55,448	54,088
1983	200.7	791.1	3,481	13,684	57,656	57,810
1984	275.5	914.8	4,413	15,074	62,420	60,689
1985	258.0	1,091.7	4,098	17,123	62,949	63,488
1986	318.2	--	4,554	--	69,876	--

Source: K. William Chandler, Residential Sales Report.

The Tennessee economy entered third quarter 1986 with most sectors experiencing robust gains. Total personal income grew 5.6 percent from second quarter 1985 to second quarter 1986, outperforming the national gain of 4.7 percent. Sales tax collections across the state rose 6.1 percent on a year-to-date basis compared to 1985, and initial claims for unemployment declined 10.3 percent from last August. However, due to strong growth in the state's civilian labor force, the unemployment rate remains virtually unchanged from its year-ago level.

Quarterly data indicate that Tennessee's non-agricultural employment rose 3.6 percent from second quarter 1985 to second quarter 1986, outperforming the national gain of 2.6 percent. Chattanooga registered the best yearly gain, up 3.2 percent. Knoxville, Nashville, and Memphis experienced modest gains of slightly under 1.0 percent. Virtually all the job growth in Chattanooga was concentrated in the non-manufacturing sector, with manufacturing employment unchanged. Nashville was the only metropolitan area to register a small gain in manufacturing employment, up only 0.1 percent. The Tri-Cities area showed the second best gain in non-manufacturing employment with a compounded annual rate of change of 3.1 percent. However, for the initial month of the third quarter, Tennessee's July 1986 unemployment rate was 8.5 percent, little changed from last July, with 72 of the 95 counties reporting increases in unemployment. The state's highest unemployment rate was in Perry County, and the lowest rate was in Williamson County.

The Tennessee Department of Economic and Community Development reported that 191 new industrial plants, plant expansions, and non-manufacturing projects were announced for the first six months of 1986, with recruiting activities up 24.0 percent. The total included 47 new plants, 108 expansions, and 36 non-manufacturing projects representing $753 million in capital investment and 9,732 new jobs. Major new developments across the state include Chattanooga's Tennessee Riverpark, a 20-year, $750 million project which will include a $15 million aquarium, and Nashville's $190 million City Center, a twin tower office development downtown. Other announcements include a new Boeing aerospace plant near Knoxville and a Dean Witter Reynolds (the financial services unit of Sears) credit card processing center in the Tri-Cities area which will create about 350 new jobs. International Paper Company, the world's largest producer of wood and paper products, will move its operations headquarters from New York City to Memphis, transferring about 400 employees to the city.

For the twelve months ending May 1986, the dollar value of building permits across the state rose 26.6 percent from the comparable twelve-month period in 1985, outperforming the national gain of 6.8 percent. Both residential and non-residential building activity experienced robust gains, up 30.0 and 21.9 percent, respectively. The number of dwelling units, however, registered a moderate gain of only 7.1 percent, primarily due to a 13.4 percent decline in the multi-family sector. Single-family units recorded a solid gain of 36.7 percent. On the non-residential side, most categories showed solid gains, with the dollar value of permits for industrial buildings and schools increasing threefold. The only major category to register a decline was the office building sector.

Tennessee's agricultural sector has been improving. The Tennessee Farm Price Index has increased 2.6 percent since May 1986, with crops registering a gain of 3.0 percent and livestock prices gaining 1.5 percent. Forest products are having an especially good year; red oak hardwood prices are the highest in several years, with No. 1 common red oak at $515 per thousand board feet. In other developments, the Tennessee Agricultural Statistical Service reports that while cash receipts for all Tennessee farm products are 2.0 percent below 1984 levels, cash receipts are 14.0 percent above the 1983 level. Moderately higher commodity prices and lower crop estimates, coupled with declines in the international value of the dollar to help exports, could cause Tennessee's agricultural sector to register substantial improvements in 1986.

Recent Tennessee corporate news releases include:

First American Bank (Nashville). The Federal Reserve Board has approved the acquisition of Tennessee National Bancshares of Maryville, Tennessee. TNB was the sixth largest banking organization in the state with five subsidiary banks and a life insurance company. First American will remain the second largest bank in Tennessee, in terms of deposits, with $3.7 billion in assets and 13.4 percent of total deposits in the state. (NASDAQ:FATN)

The Crump Companies (Memphis). The company recently announced its merger with the London-based Sedgwick Group, the world's third largest insurance broker. The merger was carried out through Sedgwick's U.S. subsidiary, Fred S. James and Company of New York. The merger was valued at $307 million. (NASDAQ: CRMP)

United Cities Gas (Brentwood). The company has merged with the Tennessee-Virginia Energy Corp. of Johnson City and acquired the McCullock Oil Company of Mountain City. The merger and acquisition has added about 29,000 customers of propane and natural gas in the Upper East Tennessee and Southwest Virginia areas. Additionally, United Cities has filed an application to the Tennessee Public Service Commission for a $4.3 million increase in rates for its Tennessee customers. The company cited increases in liability insurance and the loss of industrial revenues due to competition from oil as an alternative fuel source. The company is requesting a 15.0 percent return on equity in the application. (NASDAQ: UCIT)

Third National Bank (Nashville). The bank recently announced a merger with SunTrust Bank, Inc., of Atlanta as a wholly-owned subsidiary. SunTrust Bank resulted from a 1985 merger between Sun Banks of Orlando and the Trust Company of Atlanta. The merger will create a $24 billion financial services organization serving the Southeast. SunTrust operates 44 banks with 480 offices in Florida and Georgia and ranks 6th among U.S. banks in terms of the total value of stock outstanding. Third National is the second largest bank in Tennessee, in terms of assets, and the top earnings performer for the last three years. (NYSE: STI)

Endata, Inc. (Nashville). Endata recently announced the acquisition of the computer micrographics portion of Micrographic Reproductions, Inc., of Garfield, New Jersey, and the acquisition of ComData of Jacksonville, Florida. Endata is the third largest computer data imaging service company in the U.S. with operations in 22 cities. (NASDAQ:DATA)

National Health Corp. (Murfreesboro). NHC has begun construction of eight long-term care centers in Florida with a total of 692 beds. The centers will be owned by Florida Convalescent Centers and managed by NHC. The centers will feature a home-like setting which offers a full range of rehabilitative services. Recently, the company was ranked 8th among the nation's growth companies by *Financial World* magazine. (NASDAQ:NHCC)

Finally, Tennessee currently ranks as the 17th most populous state in the U.S. But, in terms of other indicators, how does Tennessee rank among other states? Listed below are some recent Tennessee rankings published by the Bureau of Economic Analysis:

7th	Divorce Rate	14th	Infant Mortality
8th	Hospital Beds	8th	Food Stamp Recipients
26th	Physicians	17th	Traffic Fatalities
14th	Unemployment	35th	Crime Rate
7th	Percent Manufacturing	43rd	Teachers' Salaries
29th	Millionaires	47th	Pupil Expenditures
6th	Firms with 100 or More Employees	31st	Percent Vehicles Exceeding 60 MPH
32nd	Scientists/Engineers	28th	Farm Cash Receipts

Figure 2

PERCENTAGE OF LOSSES OCCURRING IN 1985 BY
YEAR CLAIM REPORTED: CASE II

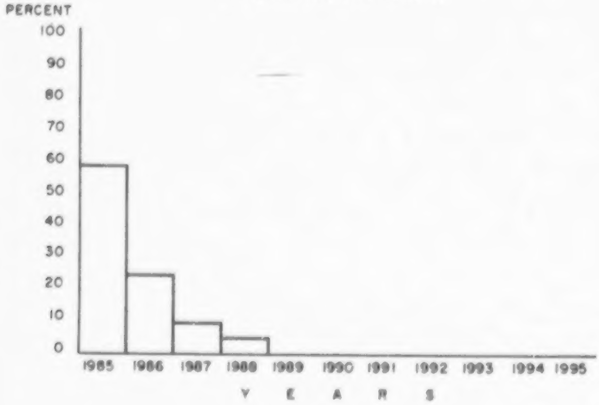
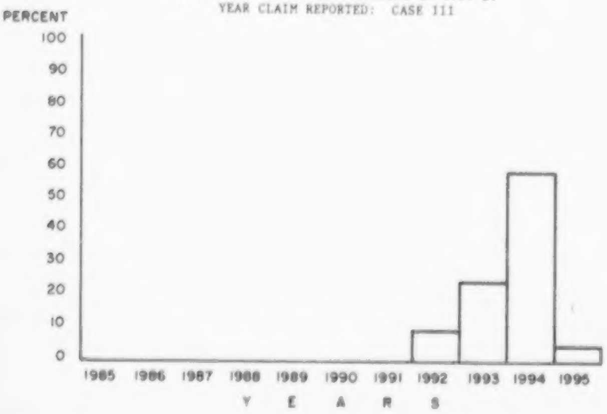


Figure 3

PERCENTAGE OF LOSSES OCCURRING IN 1985 BY
YEAR CLAIM REPORTED: CASE III



reported. The difference in the pattern of reporting of losses is the key reason to distinguish between occurrence-based policies and claims-made based policies.

Occurrence. In an "occurrence"-based policy, the coverage "trigger" is the date the loss occurs. The language of an occurrence-based liability policy states that the insurance company will pay those amounts which an insured is legally obligated to pay because of bodily injury or property damage *occurring within the policy period.* The policy period is the time between the inception date and the expiration date of the insurance policy. For example, ABC Corporation purchased an occurrence-based general liability insurance policy to cover its exposures from January 1, 1985, through December 31, 1985. Any insured event which occurred during this period of time was covered under the policy no matter when the claim was made. If a person was injured on November 14, 1985, but does not file a claim against the business until July 1, 1987, the 1985 policy would still apply. This basic rule is applicable to both the "old" and "new" occurrence policies. Even cancellation of the policy at the end of 1985 would not allow the insurer to escape the claim. In each of the cases illustrated by Figures 1, 2, and 3, the policy providing coverage the year the event occurred (1985) would be the policy which covered the claim.[2] Both the old and the new occurrence-based policies operate in the same manner—the date on which the event occurs triggers coverage.

Claims-made. In contrast to the occurrence-based policy, the coverage trigger in a claims-made policy is the time of the occurrence and when the claim is made. In other words, both the occurrence and the reporting of the claim must be within the policy period. The 1985 event discussed in the previous paragraph would not be covered under the 1985 claims-made policy if the claim was not made until July 1, 1987. Thus, given the situation illustrated in Figure 1, 5.0 percent of the claims occurring in 1985 would not be covered under the 1985 policy.[3] Similarly, 40.0 percent of the 1985 occurrences depicted in Figure 2 and 100.0 percent of the occurrences depicted in Figure 3 would not be covered under the 1985 policy. It is this provision which makes it especially important for business insurance purchasers to be aware of the terms of coverage.

The claims-made policy provides protection against claims arising from events which occur during the policy period and after the retroactive date (if any) that are reported during the policy period. The initially purchased claims-made policy will either specify a retroactive date (probably the inception date of the first policy) or will not specify a retroactive date (in which case the retroactive date will be "none"). Each of these two cases must be considered.

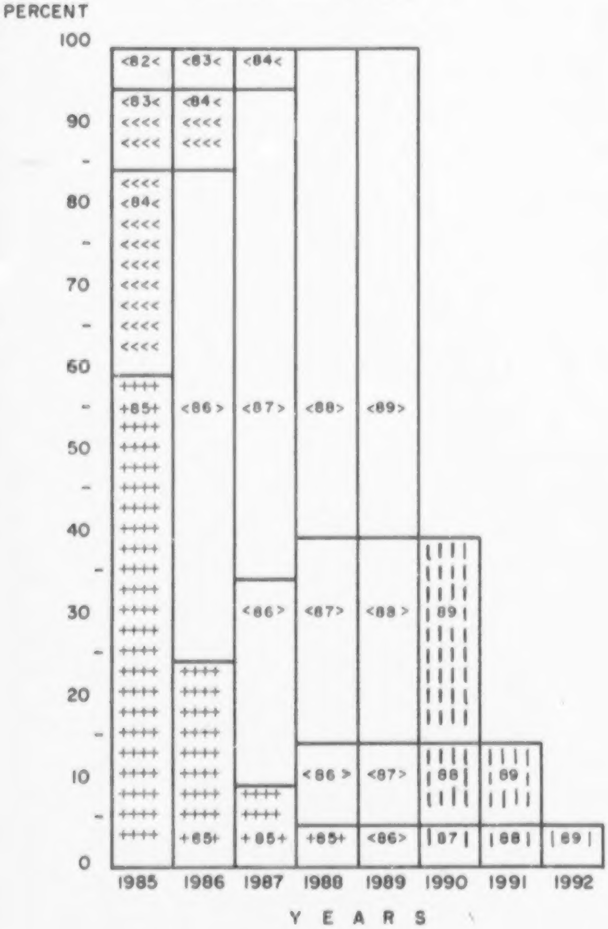
In the first case where a retroactive date is specified, the policy will cover only those events which occur and for which a claim is made while the policy is in force and subsequent to the retroactive date. Losses claimed for events prior to the retroactive date but not reported are not covered. On future claims-made policies the retroactive date may stay the same as on the first policy. If the date stays the same, events occurring in the first year for which a claim is made in a later year will be covered by the later year's policy. Events prior to the retroactive date of the policy in force will not be covered.

Where the retroactive date is not specified or specified as "none," the current claims-made policy will cover events when the claim is made as excess over the policy in effect when the event occurred. In other words, if "none" is specified, then the policy in effect on the date of occurrence applies first and the current claims-made policy applies second and only to damages above the first policy's limits.

Figure 4 illustrates a number of years of loss experience assuming the loss reporting distribution depicted in Figure 2 (60.0 percent of losses reported in the year of occurrence and 25.0, 10.0, and 5.0 percent in the next three years, respectively). Assume that prior to 1985 the insured had an "occurrence"-based policy and changed to a "claims-made" policy in 1985. The losses reported during 1985 would be covered either by prior occurrence policies or by the current claims-made policy. The 60.0 percent of 1985 losses reported in 1985 would be covered by the 1985 claims-made policy (shown with "++++" in the 1985 column). The prior years' losses which were not reported until 1985 (25.0 percent from 1984, 10.0 percent from 1983, and 5.0 percent from 1982) are covered by the respective years' occurrence policies (shown as <<<<).

Figure 4

LOSSES OCCURRING FROM 1985 THROUGH 1989
BY YEAR CLAIM REPORTED



The remainder of the 1985 losses reported in later years (shown as ++++ in years 1986-1988) will not be covered under the 1985 policy. The insured can have coverage for these events if the retroactive date is maintained in later policies or if special provisions for covering the unreported losses are made. If on renewal the retroactive date is the inception date of the first policy, coverage continues without interruption and with the current year's limits applying. If, however, the retroactive date is advanced by the insurance company or if the policy is cancelled or non-renewed, then care must be taken to assure coverage. For example, suppose that at the end of 1989 the policy is either cancelled, non-renewed, or the retroactive date on the 1990 policy is specified as the inception date of 1990, the losses which have not been reported will be uninsured (shown as |||| in the 1990, 1991, and 1992 columns).

Three situations are possible in this case: (1) an event has occurred and has been reported to the insurance company within 60 days following the termination of the policy, (2) the claim is made within 60 days following the termination of the policy, and (3) the loss is neither reported nor a claim made within 60 days.

When the occurrence has simply been reported within the 60 days following change, the claims-made policy provides a five-year automatic "tail" coverage. The tail coverage means that the claims-made policy in effect at the time of the occurrence will apply. When the claim is made within 60 days following the termination of the policy, coverage is provided automatically. Where the event is not known and the claim is not made within 60 days following termination, the insured will have no coverage unless an extended tail coverage is purchased and the required premium is paid. This supplemental extended tail endorsement reinstates the limits of the policy and applies only to events reported after the basic policy periods.

Specification of Policy Limits

The operation of policy limits is another reason it is important to distinguish between prior occurrence forms, the new occurrence form, and the claims-made form. Policy limits are those amounts specified in the policy that are available to pay claims from covered events. Limits can be specified as applying for each occurrence and/or applying in the aggregate. Limits that apply to each occurrence apply to each covered event. For example, a policy containing $1.0 million occurrence limits would provide up to $1.0 million of protection for each covered occurrence. If no aggregate was specified, then the liability of the insurance company is limited only by the number of occurrences which might take place in one year. However, if an aggregate limit is specified, the insurance company has limited its total liability over the policy period. For example, if a policy specified a $1.0 million per occurrence limit and a $3.0 million aggregate limit, then each occurrence would have up to $1.0 million of coverage, but the insurer would pay no more than $3.0 million over the coverage period.

With the exception of products liability and completed operations exposures,[4] the "old" occurrence-based policy limits applied to each event that occurred within the policy period. Thus, with $1.0 million occurrence limits,[5] a policy says that $1.0 million will be available each time a covered event occurs. For example, ABC Corporation has $1.0 million limits and during the policy period experiences losses of $200,000, $400,000, $300,000, $700,000, and $1,000,000. Each of the losses would be paid in full since in no case did any loss exceed the per occurrence limit.

Under the "new" occurrence policy and the claims-made form, however, the limits are stated in terms of an occurrence limit and an aggregate general limit. An aggregate limit of $1.0 million would pay only $1.0 million in total. If the losses mentioned in the previous paragraph were incurred and paid in order, there would be only $100,000 available to apply to the $700,000 loss and nothing for the $1.0 million loss. In addition, the insurer's obligation to provide legal defense would end when the limits of liability were exhausted. The selection of policy limits is therefore of extreme importance to the purchaser of the "new" occurrence-based policy or the claims-made policy coverage.

Implications of the Changes

There are several major implications of the policy provisions discussed in the previous section. First, some losses that would have been covered under the old "occurrence" type policy will no longer be covered. Second, increasing care must be taken on renewal of an existing policy and when one policy is replaced with another policy. Third, policy limits that were selected in the past may no longer be adequate. Fourth, the importance of keeping insurance records by the business is becoming essential. While the exact provisions of the policy the business purchases control the specific concerns that must be recognized, general concerns can be summarized.

Some Losses Are No Longer Covered

If the business purchases a claims-made policy, only losses that occur and that are reported during the policy period will be covered. The policy period is generally that period of time from the retroactive date until the expiration date of the current policy. Losses prior to the retroactive date and losses reported more than 60 days after the expiration of the policy are not covered. It is important to identify these uncovered losses and exercise care on renewal or replacement.

Care Must Be Taken on Renewal or Replacement

When a claims-made policy is renewed with another claims-made policy from the same insurer, the business must be aware of the new policy's retroactive date. If the retroactive date stays the same as on the initial claims policy, then the policy period is extended to cover all events within the period of time between the retroactive date and expiration date of the new policy. Any insured event occurring within this time span and for which a claim is made will be covered.

However, one must also be aware that the retroactive date can be advanced and/or the insurer may specifically exclude some exposures on the new policy. In the first case, the business must buy a supplemental extended tail endorsement to cover losses occurring during the period of the previous policy but not yet reported. An additional premium will be charged and the aggregate limits will be in force only for these events. If specific exposures are excluded, it will also be necessary to purchase the supplemental tail endorsement to have protection.[5]

If the claims-made policy is replaced with a policy from another insurer, it is likely that the new insurer will state the retroactive date as the inception date of the new policy. Supplemental tail coverage will again have to be purchased.

If no retroactive date is specified on the new policy, then the new policy will provide coverage for claims that are made during the policy period as excess over other applicable insurance (for events occurring in prior years). Irrespective of the coverage provided, care must still be taken to provide for adequate limits in the policy.

Limits May No Longer Be Adequate

The use of aggregate general limits in the new claims-made and occurrence policies may result in losses not being covered. Where the business may have had adequate limits of, for example, $1.0 million per occurrence, new limit specifications of $1.0 million per occurrence and $2.0 million aggregate may be insufficient. It is important to remember that the $2.0 million aggregate limit can be "used up." It is reduced by the amount paid for each loss. When exhausted, no more insurance coverage exists.

When the supplemental extended tail coverage is purchased, the policy limits for these later reported events are the same as for the original policy. They can also be exhausted by later filed claims that are paid. Therefore, it is very important to consider higher limits under the new occurrence and claims-made policies. Even then, the business must pay particular attention to maintaining policy records.

Increasing Need to Maintain Insurance Records

As the use of the new insurance policy forms increases, it is very possible that the business will have a number of insurance policies which cover events, depending upon the time the event took place. Obviously, the current policy records are important. If all policies are of the occurrence type, then a year-by-year record of the policy number, the insurance company name, and the basic coverages and limits provided should be retained.

If the current policy is of the claims-made variety, then it will cover the period from the retroactive date to the expiration date shown on the policy. Records of previous claims-made and occurrence policies should also be maintained to document coverage for periods not covered by the current policy. Records of any supplemental extended tail coverage purchased are also important. These "tail" coverages provide protection without time limit. Many agents and brokers maintain extensive records of their clients' insurance transactions. However, the passage of time, the loss of records, potentially inadequate records, and the likelihood that the insured will do business with several agents or brokers over time necessitate the maintenance of internal insurance records.[6]

Summary

This article has presented several changes that are being implemented in business liability insurance nationwide. Not all of the changes have been discussed. Not all companies have yet inplemented these changes. Most companies are projecting the changes in the near future. As in all cases involving complex instruments, the reader is cautioned that the actual policy language is the controlling factor. The reader is advised to seek appropriate advice if and when confronted with problems arising from policy changes.

Claims-made policies will necessitate attention to the retroactive date specified on current insurance. Coverage for losses occurring but not reported in the policy period will need to be purchased.

New occurrence forms and claims-made forms are projected to have "aggregate" general limits. The business must therefore consider increasing limits beyond the current level to avoid exhausting its coverage.

Insurance records are very important to the business. There is no "magic" number of years to keep these records. Probably the safest rule is to maintain all policy records indefinitely.

Use the agent or broker as a source of information. If the terms of a policy are not clear, ask for an explanation. The management of a business' insurance program will be of critical importance.

Footnotes

[1] While each insurance company's policy may vary in the exact provisions of coverage, a summary of the proposed changes in general liability insurance is contained in *Introduction to Insurance Service Office, Inc.'s, New Commercial General Liability Program* (3rd edition; New York, NY: Insurance Service Office, Inc., April, 1986).

[2] All insurance policies have general conditions concerning the reporting of losses. These conditions include instructions as to when and how a claim must be reported. The safest procedure is to notify the insurance company immediately upon learning of a loss. To be more precise, the policy should be consulted.

[3] Losses reported within 60 days after the expiration or termination of a policy are exceptions to this rule. These exceptions are discussed later.

[4] Products and completed operations exposures were subject to per occurrence and aggregate limits under the commercial general liability form purchased by many businesses. It is beyond the scope of this article to discuss these specific coverages. Readers who are interested should discuss this matter with their agent or broker.

[5] Most policies provide separate occurrence limits for bodily injury liability and property damage liability. For purposes of discussion, however, this distinction is ignored here.

[6] For example, one need only consider the circumstances of asbestos exposures. Many claims were filed against businesses for exposure to asbestos as long as 30 and 40 years ago. The need to identify the occurrence policy in effect on the date of the exposure is very clear.

A BUSINESS PROSPECTIVE OF THE "REFORMED" TENNESSEE WORKERS' COMPENSATION LAW

*Frank S. Cantrell and Vickie L. Cortese**

Introduction

Tennessee has had a workers' compensation statute since 1919. The current Tennessee Workers' Compensation Law, as the statute is formally named, appears at Tennessee Code Annotated 50-6-101 et seq.

The statute has undergone amendment several times since 1919. Over the last several years, however, the need for "reform" has apparently gathered steam, with all camps anticipating potential change favorable to their particular point of view. In 1984, the legislature considered and passed H.B. 2146/S.B. 2062, which would have extensively amended the Tennessee Workers' Compensation Law [hereinafter referred to as the Act]. The 1984 bill, which passed in both houses of the state legislature by wide margins, was the product of a conscientious, but narrowly drawn, advisory committee. The bill would have raised weekly benefits (thereby raising the maximum benefits), introduced the use of the American Medical Association (AMA) *Guide to the Evaluation of Permanent Impairment* as the source to be used by physicians in setting permanent physical impairment percentages, greatly broadened the second injury fund, changed the procedure and standard of review for appeal of workers' compensation cases, and set up a medical cost commission to limit medical fees in workers' compensation cases.

Many segments of the business community and those in the legal and medical professions, upon hearing that consideration of the bill by the legislature was imminent, felt they had been left out of the process of developing the proposal and had been taken by surprise by the bill. They agreed with the need for reform and with some of the proposed changes (increased weekly benefits, for example). This group, who for the most part is in workers' compensation administration daily, believes that true reform can be accomplished only if the Act is amended to bring greater consistency and predictability to awards while shifting a greater percentage of workers' compensation dollars to more seriously injured employees.

After mounting an impressive, but unsuccessful, last-minute campaign to defeat the bill, the opponents of the bill, many of whom had discovered one another during the floor fight over the amendments, banded together to form a highpowered networking group which took its case to Governor Lamar Alexander. The group was successful in demonstrating to the governor that the changes contained in the bill as passed had not been sufficiently analyzed to determine the impact they would have on the commerce of the state of Tennessee. The governor vetoed the bill on June 3, 1984, saying, "I cannot approve the bill because it contains uncertainties that could damage Tennessee's prospects for attracting new business investments that produce new jobs." Since the legislature had adjourned for the year, the proponents of the bill were unable to attempt to override the veto.

Soon thereafter, the legislative advisory committee on workers' compensation was broadened to include members who would represent those segments of the community that felt they had been overlooked when the original advisory committee was chosen. Due to the broadening of the committee, and perhaps partly due to the resentment felt by some proponents of the 1984 bill as a result of the veto, the new committee was not expected to be as involved in the actual drafting of the bill as the original, more narrow committee had been. This expectation proved true. Through the fall of 1984 and the spring of 1985, several proposals for a 1985 workers' compensation reform bill surfaced. The committee, though it met and tried, was unable to propose a consensus bill.

A comprehensive bill was ultimately passed in 1985 as Public Chapter 393 (H.B. 411/S.B. 832) and took effect on July 1, 1985. The legislature also passed several less sweeping amendments to the Act in that same session. The 1985 amendments, along with the more limited amendments which were passed in the 1986 session of the legislature and which took effect on July 1, 1986, will be the major topic of this article. The writers of this article hope to highlight those changes in the Act, to identify the concerns that the bills were intended to address, to analyze whether those concerns were worthy of being addressed,

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to consider whether the bills as signed into law actually met those concerns, and to, in small measure, discuss some matters that perhaps should have been addressed. The writers do not purport to speak for or represent any particular group, but only to give a perspective on this topic.

Raised Weekly Benefits:
Section 50-6-102

In 1984, there was much criticism of the Tennessee Workers' Compensation Law. The major reason given for the criticism was that only Mississippi and Georgia had lower benefit levels than Tennessee. Therefore, an extensive revamp of the weekly benefit structure was proposed which not only offered annual benefit increases for three consecutive years, but ended up in July 1987 to be indexed at 66.7 percent of an employee's average weekly wages, with the maximum subject to the state's average wage as compiled by the Tennessee Department of Employment Security.

This was adamantly opposed by a great number of people in the business sector, mainly due to the argument that benefit increases would not fix the faltering system's ability to direct the benefit dollars where needed. The business community agreed benefit levels were low and agreed to increased benefit levels if steps could be taken to insure that the larger majority of the dollars were diverted to the injured employee who might not be fortunate enough to return to his or her pre-injury employment.

Due to the obvious uncertainty inherent in the 1984 bill, including uncertainty as to the effect on worker's compensation costs in the state of Tennessee, Governor Alexander vetoed the workers' compensation bill in June 1984.

Then in 1985, ultimately the same bill was proposed by both labor (AFL-CIO), plaintiff's bar, and the Tennessee Manufacturer's Association. In an all-out effort to get all sides in agreement, a committee comprised of members of the governor's staff proposed that benefit levels be increased over a five-year period. The proposal as enacted raised benefits from $136.00 to $168.00 in the first year, $189.00 in the second, $210.00 in the third, $231.00 in the fourth, and $252.00 in the fifth year.

Unfortunately, something in the Tennessee system was broken that has not and cannot be repaired by simply raising weekly benefits and that is widespread discrepancies in awards, which often requires full-scale litigation. In addition, there is no evidence that this type of system results in a greater degree of equity, especially in situations where an injured employee returns to the same employment subsequent to injury and receives greater benefits than another employee who can never return to his pre-injury employment.

This is not a criticism of the people involved in the system, but rather a problem brought about by the system itself. It also is not unique to the state of Tennessee; many states encounter the same types of problems, which can only be alleviated by removing as many subjective elements from the system as possible.

There is obviously significant room for improvement in the present system, but the answer to the problem is not funnelling additional dollars into the system without fixing the real inequities. The real answer will not be simple to find; but each of us will be forced into reviewing the problem again in the next few years, with a far more expensive system impacting on the economy of the state in the meantime.

Burial Benefits:
Section 50-6-204

On July 1, 1986, the legislature increased the maximum burial benefit to $3,000.00, when an injury resulted in death.

Employer Liability Under Third Party Indemnity Actions:
Section 50-6-108

An employee's right to collect workers' compensation from an employer is the employee's exclusive remedy. In other words, there is no recovery from the employer for negligence, punitive damages, pain and suffering, etc. If, however, a third party's negligence causes the injury, the employee (and at times the employer) has the right to proceed against the third party under traditional common law remedies, T.C.A. Section 50-6-112.

A difficult issue arose when the negligent third party and the employer had entered an agreement whereby the employer would indemnify (reimburse) the third party for liability. If indemnity were allowed, the net effect would be to allow the employee to recover from the employer under common law theories, thus circumventing the exclusive remedy provision of the Act. At least one court in this jurisdiction had recently refused to allow this type of indemnity—*Tennessee River Pulp and Paper Company v. Eichleay Corporation*, 708 F.2d 1055 (6th Cir. 1983). Under a separate 1985 amendment (Public Chapter 326), this type of indemnity is expressly allowed.

Modification of Statute of Limitations for Third Party Actions:
Section 50-6-112

Tennessee has a one-year statute of limitations for actions for personal injury, T.C.A. Section 28-3-104. At times, a workers' compensation injury may occur due to the negligence of a third party unrelated to the employer. Under such circumstances, the injured employee is allowed to pursue a common law negligence action against the third party, provided that in the event of recovery from the third party, the employer has a subrogation lien against the recovery to the extent of the employer's past or future liability for workers' compensation, T.C.A. Section 50-6-112.

Under prior law, the employee had one year from the date of injury to institute suit against the third party. If the employee failed to do so, the employer became the assignee of the rights and had an additional six months within which to file suit against the third party, T.C.A. Section 50-6-112.

The problem arises where the injury occurs in a state other than Tennessee. An employee, for example, may be injured in Mississippi under circumstances where the Tennessee courts have jurisdiction over the workers' compensation claim. If the "employment was principally localized" within Tennessee or if the "contract of hire was made in this state," Tennessee courts have jurisdiction over the claim, even though it happened outside the state, T.C.A. Section 50-6-115.

Some other states have personal injury statutes of limitation longer than Tennessee's one-year statute. In Mississippi the statute is six years. Where the injury occurred outside Tennessee in a state with a longer statute of limitations, the issue was whether the third party negligence suit was subject to the one-year Tennessee statute or the longer statute of the other state. The 1985 amendment clears up this issue by providing that the longer statute applies.

At least one question seems to remain, though. If the longer statute applies and the employee fails to commence the third party action even within that longer period, does the employer still have the additional six months as the assignee of the right? The answer, it seems, should be affirmative.

Penalties:
Section 50-6-118

The workers' compensation division of the Department of Labor has been given the authority to establish and collect penalties for the following:

(1) Failure of a covered employer to provide workers' compensation coverage or qualify as a self-insured
(2) Late filing of accident reports
(3) Late payment of benefits or bad faith denial of claims
(4) Late filing of notice of denial of claim
(5) Failure to make a final determination on compensability of a claim within ninety days without good cause
(6) Late filing of notice of change in benefit payments
(7) Late filing with the Department of notice of filing of lawsuits by employees or employee representatives
(8) Late filing of judgments by insurance companies or by employers, if self-insured
    (b) The penalties collected by the Department shall by paid into and become a part of the second injury fund

Information Awareness Program:
Section 50-6-119

In order to provide a greater awareness among both employers and employees of their rights under workers' compensation laws, the Department of Labor instituted an information awareness program which would:

(1) Involve a statewide effort to consult with employers on the actions required
(2) Provide that employers with frequent incidents of injuries be targeted for referral to appropriate agencies on accident prevention
(3) Provide education and information aimed at preventing disputes and delays in the processing of claims through the use of speakers' seminars and conferences
(4) Provide a system to communicate developments in the law to interested groups
(5) Provide injured employees with complete information on their rights to compensation and day-to-day assistance with problems on their claims
(6) Develop general informational literature and audio-visual aids for both employees and employers
(7) Provide a toll-free number for employers and employees to receive information from and ask questions of the Department

The intent of this section was to curb the use of litigation by keeping both the employer and employee communicating with each other. Whether or not the section will work will depend a great deal on the kind of responses received by the employee from the Department of Labor when the ultimate call is made.

Once the responses are received, will the employer and employee act accordingly without litigation or will they still find it necessary to engage in a lawsuit?

Guide to American Medical Association (AMA):
Section 50-6-204

To provide uniformity and fairness for all parties, effective July 1, 1985, it was determined that any medical report prepared by a physician furnishing medical treatment to a claimant would be based on the American Medical Association 1977 *Guide to the Evaluation of Permanent Impairment*, or subsequent editions. Effective July 1, 1986, *The Manual for Orthopedic Surgeons in Evaluating Permanent Physical Impairment* was added to the list of approved manuals to be used when preparing medical reports.

This particular area of the workers' compensation statute was probably one of the major areas of the Tennessee statute that was truly in need of repair. The setting of anatomical ratings by physicians without any required objective guidelines had failed to treat injured workers across the state with any consistency. When further subjective factors were added to convert the impairment rating to a disability rating, this two-tier subjectivity was unfair to all parties, including the judges and chancellors forced to make decisions under that system. This particular segment of the statute simply insures that all injured employees are given anatomical impairment ratings by physicians, based on the same objective criteria.

The introduction of these two highly authoritative manuals into the arena of impairment ratings is, no doubt, a step in the right direction. The manuals provide the physician with guidelines upon which to evaluate the level of permanent impairment. They also provide the non-physicians involved in the system with a source upon which to rely to determine whether or not an anatomical award is reasonable, thus ruling out costly second evaluations in cases where they are unnecessary while quickly highlighting those cases in which a second opinion is appropriate.

There are things, however, that these manuals cannot do. They cannot guarantee that physicians will agree on a diagnosis or an opinion as to what further treatment, if any, is indicated. They cannot guarantee that physicians will agree on the relative success or failure of a particular treatment or operation. Perhaps most important, they cannot guarantee that the hundreds of trial judges and chancellors across the state will all reach consensus when performing the unenviable task of converting physical impairment into permanent disability by use of factors such as age, education, and experience.

It may be that no system will provide complete consistency and objectivity in awards. Some say that a commission format would help by reducing the number of decision-makers involved. Others say the current court system is better because so many judges and chancellors are involved, each with his or her own fresh approach to each case, that an assembly line workers' compensation system is guarded against.

If there are potential changes in the system which would bring greater consistency and objectivity without removing the flexibility that is needed by a tribunal, those changes should be pushed. Identifying and implementing those changes will take an all-out, non-partisan effort by labor, management, and other interested parties.

Approval of Chiropractors to Panel: Section 50-6-204

On July 1, 1985, the legislature approved a bill that will allow employers to add chiropractors to their panel of three physicians, if so desired. It will be interesting to see the effect of this provision on the use of chiropractors in independent evaluations or emergency treatment. Further, this development raises the possibility of an injured employee being presented with a panel of three chiropractors when he would prefer treatment by a medical doctor.

Expansion of the Second Injury Fund: Section 50-6-208

A second injury fund is designed so all employers in the state share the risk that two injuries might combine to produce a far greater disability than either of them alone. Under the old statute and the new, the combination of the injuries must produce permanent and total disability. In second injury fund cases, the injured employee first recovers from the employer the amount of permanent disability benefits that the second injury alone would have produced. Then, the state, through the second injury fund, pays the difference, thus allowing the employee to receive benefits for permanent, total disability.

Under the old statute, only the combination of certain scheduled losses (hands, arms, feet, legs, or eyes) came within the second injury fund. Under the 1985 amendments, any two injuries combining to cause permanent total disability qualified, provided certain conditions (which were also required under the old statute) were met with respect to the employer's advance knowledge of the injury. This amendment simplified the system in theory, but it shifted a tremendous burden to the state. The risk is that employers and employees alike will "dump" undeserving claims on the second injury fund on the false assumption that the fund dollars simply "come from the state."

The old statute made no explicit provision for the possibility that the employee might receive more than the statutory maximum benefits over his lifetime by pyramiding claims under the second injury fund. Under the 1985 amendment, this was explicitly recognized and approved. The amendment allowed recovery in excess of 100.0 percent disability, but it required that any such excess recovery in cases where the injury is "to the body as a whole" (rather than a scheduled injury) be from the state second injury fund.

Proponents of this logical inconsistency (the idea that a person can be more than 100.0 percent disabled) likely argue that benefits for serious injuries are too low and that, therefore, allowing recovery in excess of 100.0 percent is justified. This misses the point. If benefits are too low for serious injuries, then some provision should be made to remedy that problem directly by raising benefits in more serious cases rather than through the paradox of disability in excess of 100.0 percent. The real problem seems to be that much of the benefit dollar which should be directed at the seriously injured is instead spent on the claimant who, for wage earning purposes, is no worse off after the injury than he was before.

There is a particularly disturbing feature of the provision for allowing awards in excess of 100.0 percent. An allowable inference is that the state legislature, seeing a potentially emotional and difficult issue, took the easy way out by allowing the excess awards but imposed the liability on the second injury fund knowing that this would cause less strident opposition than if the liability were imposed on employers themselves. The obvious problem with this type of experience is that it ignores the fact that the money for the second injury fund comes ultimately from the same employers who would have strongly opposed the bill if the excess liability had been heaped directly on them.

Recovery from Second Injury Fund for Epileptic Seizure (Uncodified)

A quirk in the legislative system was exhibited when two separate bills were passed to amend the second injury fund. The first was Public Chapter 319 (H.B. 76/S.B. 190), which provided that any recovery of permanent disability benefits for injury resulting from epileptic seizure would be solely from the second injury fund. This bill passed on May 2, 1985, and was signed into law by Governor Alexander on May 9, 1985. By its terms the bill took effect immediately.

Then, when the comprehensive bill later passed as Public Chapter 393, it, too, amended the second injury fund section without mentioning Public Chapter 319. The two amendments were not logically inconsistent with one another. Yet, when the 1985 amendments were codified, Public Chapter 319 (dealing with recovery from the second injury fund for injuries due to epilepsy) was left out.

The apparent reasoning was that the later treatment by the legislature of the same section of the code implied that they were rescinding Public Chapter 319. This seems to be a rather haphazard approach to lawmaking. There seems strong argument that Public Chapter 319 is law, its lack of codification notwithstanding, in that codification is merely directory and cannot affect the validity of the law. See *Hancock County v. Hawkins County*, 83 Tenn. 266 (1885).

Abolition of the Material Evidence Rule: Section 50-6-225

A party dissatisfied with the outcome of a workers' compensation proceeding in the trial court has the right to appeal directly to the Tennessee Supreme Court. The standard of review before the 1985 amendments required that the Supreme Court affirm the trial court if there was any material evidence to support the trial court. This standard discourages the reversal of the trial court. If, for example, two doctors testify at trial and strongly disagree in their assessment of the claimant, there is material evidence to support either doctor's assessment. The material evidence rule does not allow the Supreme Court to pursue the inquiry further.

Under the 1985 amendment, appeal is still to the Tennessee Supreme Court. Now, though, the Supreme Court can reverse the trial court if the preponderance of the evidence is contrary to the trial court determination. This allows the Supreme Court much greater latitude in examining issues such as the relative qualifications or degree of familiarity with the patient expressed by physicians and the weight of other evidence. Many who favored this standard of review advocated appeal to the Tennessee Court of Appeals so as not to overburden the Supreme Court with this more time-consuming analysis of the record in each case. Experience will tell whether the additional burden on the Supreme Court is reasonable.

In the event an appeal is made, interest on the judgment will be computed from the date the judgment is entered at an annual rate of interest five percentage points above the prime loan rate for the most recent week for which such an average has been published on the total judgment awarded by the Supreme Court. The purpose of this section seems to be to create additional stringent penalties to deter frivolous appeals and delays by employers.

Another change in Section 50-6-225 is the addition in subsection (c) of language requiring that workers' compensation awards be based on competent evidence. The writers of this article, whose experience in Tennessee has primarily been in Shelby, Madison, Haywood, and Tipton counties, are at somewhat of a loss as to the need for this change. Experience in those counties has been that judges have consistently been influenced only by competent evidence even before the amendment. Whatever the inspiration for the change, it can certainly do no harm. The requirement of competent evidence will tend to make evidence, and thus the resulting awards, more reliable.

Finally, with respect to this section of the statute, the legislature added a provision that allows the Supreme Court to assess penalties for frivolous appeals. This may be done by the Court on motion by the adverse party or by the Court sua sponte (on its own motion). It is likely that the Court already had this same penalty power as a practical matter under T.C.A. Section 27-1-122.

Abolition of the Concept of Present Value: Sections 50-6-229, 232

Normally, according to the Act, a compensation award is to be paid over a certain number of weeks. The greater the disability, the more weeks involved. At times, one or both parties may ask that the award be made in a single lump sum. Common sense, and prior law, would dictate that the lump sum be reduced by some amount to reflect the present value of a sum that would normally be paid out over a period of time. The present value reduction percentage prior to 1985 was 6.0 percent (4.0 percent in cases of coal workers' pneumoconiosis).

Similarly, prior law allowed an employer to place the present value of an award in an approved savings or trust account, with the principal and interest to be held for and paid out to the claimant. The percentage used to calculate present value there, too, was 6.0 percent (4.0 percent in cases of coal workers' pneumoconiosis).

The 1985 bill abolished the use of reduction to present value. There is no apparent logic to this. A lump sum award is obviously worth more than the same amount of money paid out over time. The only explanation for removing present value from the calculation of lump sums is that it is another attempt to raise benefits. This issue, though, should be addressed head on, rather than in this oblique fashion. When reason, logic, and economically sound principles are abandoned to reach an expedient result, the entire system threatens to become random and inequitable.

In an interesting oversight the legislature did not remove the referral to "present value" from the caption of T.C.A. Section 50-6-232. Although it seems to violate state constitutional requirements that the statute be consistent with the caption (Tennessee Const. Art. 2 Section 17), it is unlikely that this error will have any practical effect.

Increased Reliance on Federal Coal Mine Safety and Health Act: Section 50-6-303

The Act formerly provided that cases of coal workers' pneumoconiosis be determined in accordance with state law with certain limited exceptions, mainly with respect to maximum benefits. According to the 1985 amendments, cases of disability due to this disease are controlled by the Federal Coal Mine Health and Safety Act of 1969 (30 U.S.C. Section 901, et seq.). With primarily West Tennessee experiences in the area of workers' compensation, the present writers do not pretend to have a well informed opinion on the relative merits of this amendment.

Premium Tax

On July 1, 1985, the legislature agreed that 50.0 percent of all revenues derived from premium taxes would be paid into the newly broadened second injury fund. Premium taxes represent 3.25 percent of the total premiums paid by all employers who carry workers' compensation coverage in the state of Tennessee. Obviously, it is anticipated that these funds will be desperately needed, since for the first time the second injury fund has been broadened to include anatomical injuries. Will 50.0 percent of these funds be adequate, or should all of the dollars received as a result of the system be put back into it? This percentage may require fine tuning by the legislature.

Pooling Liabilities

Ten or more employers in the same trade or professional association may enter into agreements to pool their liabilities for the purpose of qualifying as a self-insurer, provided they meet designated guidelines. At a time when businesses are faced with astronomical insurance increases, this section of the statute lends some help. Although the criteria are very stringent, the provision still remains a viable addition to the statute.

Conclusion

Many questions must be asked of the present system. Will we continue on with a court system, or will it be determined to utilize a board or commission form of adjudication so that the findings of fact which determine the amount of an award are made by an extremely limited number of individuals, as opposed to the numerous judges and chancellors who decide workers' compensation cases in Tennessee?

Since we have started using some type of objective criteria in assessing impairment ratings, will we develop extensive tables and calculations to objectively incorporate factors such as physical impairment, age, and occupation into the final disability rating?

Or, will we determine that the amount of income actually lost by the injured worker be paid only as the injured worker incurs the loss, thereby avoiding subjective evaluations?

Or, will we determine that an injured employee can receive no more than a certain percentage of impairment should he or she be able to return to pre-injury employment?

Will we be prepared to handle the ongoing problem of over-treatment of a specific injury, not excessive medical cost?

What happens to the injured worker after the settlement of his or her claim? Will the future hold an expensive vocational rehabilitation program, or will the funds be available to invest in such a program while continuing to maintain a viable environment for employers?

As can be seen, the workers' compensation system represents a partial trade-off between equity and efficiency. Many states have experienced deterioration of efficiency, especially as society becomes more court-conscious and workers' compensation becomes more valuable. In order to avoid making some of the same mistakes that other states have made, we should review our overall system, taking a hard look at the collective facts, and determine if we can afford what we have gotten ourselves into.

The ultimate system is one that will not only increase benefits to injured workers, but one that accomplishes increasing benefits with objectivity, diverting greater dollars to the more severe cases as well as working at getting the person cured and out of the workers' compensation system instead of just transferring him to another state system. This ultimate system would benefit the truly injured employee while acting as a loss control measure by insuring that employers who have the more severe cases pay the greater dollars.

YOUR MOST VALUABLE ASSET—IS IT INSURED?

*C. Robert Brown**

What is a person's most valuable asset? Is it the dream home that took years of scrimping and saving to acquire, or is it the summer vacation home? Perhaps it is the pension fund, or the savings account that has become substantial because of all the years of disciplined saving. Assets such as these are quite valuable, but they represent only a fraction of the worth of the most valuable asset—the ability to earn an income. Unless a person has inherited enough money to provide him with an income he cannot outlive, the ability to earn is his most valuable asset. Without an income there can be no dream home, there can be no pension fund, and there can be no savings account.

Financial advisers, financial planners, and insurance agents all agree that income protection from disability is vital to the success of any financial plan. This is probably the only area of protection on which all financial advisers agree. A recent Life Insurance Marketing Research Association study indicated that three out of four persons in America do not have adequate disability income protection. Why then, with all the agreement between professional advisers, is such a large portion of the public going without adequate income protection coverage? Two reasons given for this inadequate protection are: (1) many individuals rely on the benefits they are entitled to under social security, and (2) others rely on income protection they have through their employers. Many people, however, misunderstand the benefits afforded them under social security and confuse a sick pay or sick leave program through their employers with a long-term disability program. Reliance on such leave and/or social security could be disastrous for a family should disability occur. Years of saving are required to accumulate assets, yet the moment disability strikes, the erosion of those assets begins. An individual's need for income can be so overwhelming that holding on to assets acquired over the years will not be as important as converting those assets to cash in order to provide food. To demonstrate the absolute necessity of such protection, a look at the statistics comparing the chances of disability to death may be helpful.

The probability at age 30 of death versus long-term disability that lasts at least 90 days is that disability is 3.5 times more likely to occur than death. At age 40, the likelihood of disability occurring is 3.0 times greater than death. A recent study of mortgage foreclosures published by the Housing and Home Finance Agency of the United States government showed that 48.0 percent of FHA mortgage foreclosures were caused by disability. Death was the cause of only 4.0 percent of FHA foreclosures. The statistics are similar for VA and conventional mortgages, with death causing foreclosure in 3.0 percent and 2.0 percent of the cases, respectively, and disability causing foreclosure in 49.0 percent of VA loans and 46.0 percent of conventional loans. It is evident from the statistics that nearly 50.0 percent of mortgage foreclosures are caused by disability. While prudence requires that our homes be insured against fire, rain, hail, theft, and other perils, our autos against liability and collision, and our lives against death, the odds of using these types of insurance, as reported in *Business Week* magazine, were as follows:

What Are The Odds of Using Your Insurance?

(a) Fire Insurance	- 1 in 1,300
(b) Life Insurance	- 1 in 105
(c) Car Insurance	- 1 in 70
(d) Disability Insurance	- 1 in 4

As mentioned earlier, social security is a source of benefits in the event a wage earner becomes disabled, and part of the reason people ignore their own disability coverage is their reliance on social security. A review of social security is indicated because it does provide a benefit, but it should not be the foundation of an individual's financial plan. First, the benefit for disability under social security is not payable until a person has been unable to work for six months. According to the social security definition of disability, to qualify for social security a person must be totally unable to perform any substantial gainful work which exists in the national economy whether there is a vacancy, whether it is in the geographical area, or whether the worker would be hired for the job. The definition also stipulates that the condition which prevents the individual from working will last at least twelve months and will result in death. This is a very restrictive definition of disability. In fact, more than two-

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thirds of the individuals who apply for social security benefits are turned down the first time. One need only take a cursory look at the newspapers and see attorneys' advertisements for assistance in social security appeals to become aware of the problem. It is interesting to note that of those denials appealed, 79.0 percent are denied a second time.

Assume that in the event a person becomes disabled, he decides to borrow funds to get by on until such time as he is able to return to work. A loaning institution requires that an applicant provide and prove his income. The fact that the applicant is disabled will most likely preclude any loan being granted.

Determining disability needs requires careful consideration. The accompanying worksheet can prove helpful in determining the minimum amount of income needed to support an individual's current standard of living. One must first determine current expenditures. Once expenditures are determined, existing sources of disability income should be identified and subtracted from the total monthly income needed. The remainder provides an estimate of today's net income need.

Monthly Living Expenses—

Housing (utilities, insurance, taxes, mortgage or rent) ____________
Food ____________
Clothing ____________
Transportation ____________
Child care expenses ____________
Medical ____________
Personal care ____________
School tuition ____________

TOTAL MONTHLY INCOME NEEDED ____________

Monthly Income During Disability—

Spouse's after tax income ____________
Dividends, interest, capital gains ____________
Rents, annuities, pensions ____________

NET INCOME NEEDED ____________

Insurance companies publish issue and participation limits which illustrate the maximum amount of coverage they are willing to issue at various income levels. Generally, insurance companies are comfortable with a benefit of 60.0 percent of gross income. The following is a sample listing of various income levels with accompanying maximum issue limits. The important thing to consider when measuring needs is to make sure they fit the situation. Adequacy is the key. Keep in mind that the benefit amount selected will be the sole source of economic survival during disability.

Issue and Participation Limits

Annual Income	Monthly Benefit Amount
$24,000	$1,400.00
30,000	1,800.00
42,000	2,400.00
60,000	3,200.00
100,000	4,600.00

The disability income market is constantly changing, and great strides have been made in perfecting policy forms over the last five years. It is not the intent of this article to present an in-depth analysis of the different types of disability income policies available in the market today. The purpose of the article is to make readers aware of the need for income protection and to present a summary of contractual provisions which should be sought when buying such coverage. The following is such an outline:

(1) The insurance company: Insurance companies are rated by the A. M. Best Company. Their reports categorize companies according to their financial strength, in terms of assets, liabilities, surpluses, and insurance in force. The A. M. Best Company assigns ratings as follows: A+-A, excellent; B+-B, good; and C, fair. A person should do business with an insurance company that has consistently earned the A+, superior, or A, excellent, rating.

(2) Contractual provisions: Non-cancellable and guaranteed renewable to 65. These contracts provide that the insurance company cannot cancel the policy except for non-payment of the premium, nor can the company raise the premium rate, nor add any restrictive riders until the individual policy holder attains age 65. Thereafter, if the individual remains gainfully employed, the contract of insurance can be renewed to age 75 (some companies to age 70) subject to adjustment of premiums after age 65. This type of contract provides long-term protection with price guarantees.

(3) Definition of total disability: The more liberal the definition of disability, the better. This is the insuring clause—that area of the contract which spells out what circumstances must occur in order for an individual to receive payment. A person should look for contracts that insure him in "his regular occupation." This means that the criteria used by the insurance company to pay the claim will be an individual's inability to engage in his regular occupation. This is especially important for professionals.

(4) Waiting period: The waiting period selected by an individual can be matched to his or her individual needs. Policies generally offer waiting periods of 30, 60, 90, 180, and 365 days. The longer the waiting period before benefits begin, the lower the premium costs, e.g., if an individual can afford to go 90 days before his income needs to begin, such a policy would be priced less than one for a 30-day or 60-day wait. The key is to match the waiting period to individual needs. Note, however, that under the typical plan with a 90-day waiting period, a full month's benefit would not be payable until the end of the 120th day. Thus, if an individual could go 90

days without income, he or she should have a 60-day waiting period so that benefits would be paid at the end of the 90th day, not the 120th day.

(5) Benefit periods: As with waiting periods, many choices of benefit periods are available. The longer the benefit period, the greater the amount of risk the insurance company assumes, and thus, the greater the cost. Benefit periods vary, but typically they run one year, two years, five years, and to age 65. Some contracts can be written beyond age 65 for lifetime. Since the normal working lifetime of workers in America is to age 65, many advisers recommend coverage to age 65. The waiting period and benefit period should be matched to the individual's needs and his ability to afford the protection. If cost is a primary consideration, a plan with a one-year benefit period is infinitely better than no coverage at all. Cost should not be the reason for postponing or delaying the decision to protect one's income. Age 65 coverage is recommended, but not if the cost of that coverage is out of reach. In this case, *something is always better than nothing.*

(6) Use of important riders: A residual disability rider can be added to contracts to provide benefits in the event of a partial disability. Generally, these riders provide benefits commensurate with the loss of income due to the sickness or injury. For example, a physician is able to practice in his or her occupation, but on a reduced basis, due to an injury or illness. If he or she is able to work on a part-time basis, say 50.0 percent, it is reasonable to assume that he or she would suffer a 50.0 percent reduction in earnings. The residual rider would then pay the physician 50.0 percent of his or her benefit. Without the residual rider, an individual who can work in his "regular occupation," but only part-time, would not be eligible for benefits under the definition of total disability. The residual rider is a very important benefit in any disability income plan.

(7) Cost of living/inflation rider: These riders provide that benefits would be adjusted upward to offset the effects of inflation on benefits. These important riders provide that the purchasing power of the disability benefit remains constant in an inflationary economy. Some policies provide adjustments tied to the Consumer Price Index. Others are compounded and guaranteed and not tied to any index. The decision as to which to select should be based on an individual's needs and ability to pay.

A philosopher once said that when you have good health you have everything. With good health comes the opportunity to earn an income. If that health is taken away, the ability to earn an income is lost, and the result could be tragic. The basic question we must ask ourselves is whether we are as prepared for disability as we are for the other hazards which we routinely protect against.

Data Sources

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Life Insurance Marketing Research Association
National Bureau of Labor
The Journal of the American Society of Chartered Life Underwriters, Volume VIII, No. 1
U.S. Housing & Home Finance Agency

THE SOUTHERN CITY REVIEW

REAL ESTATE TAX SHELTERS—AN END TO AN ERA

*Tom Clark and Shawn Massey**

As the year ends, the final carnage imposed by the Senate Finance Committee on the real estate industry is about to be known. Chairman Bob Packwood's plan has been approved by both Congress and the Senate and is on its way to President Reagan for his final approval. A developer or contractor might view this as the demise of the industry, but for the economy in the long-run it may be the boost that is sorely needed. Economists are in favor of the Packwood plan. They do, however, point out that tax reform could slow the economy for a while during the transitional period; nevertheless, the economy should be spurred by lower rates and an increase in consumer demand.

The commercial real estate industry is considered to be the biggest loser in the new tax proposal. Since 1981, Congress gave the real estate industry a great boost during a tax revision by providing incredible tax benefits that spawned tremendous development of commercial office space in various southern cities such as Dallas and Houston. In that 1981 legislation, Congress gave a variety of benefits to the real estate industry in an effort to spur construction growth during the national recession. At this time, a flurry of real estate syndicates were created to pass on the benefits of the new tax law to high-income individuals. The benefits that were included in this bill are accelerated depreciation, pass through of passive losses to offset ordinary income, and capital gains to be taxed at a maximum rate of 20.0 percent. These syndicates develop properties such as office towers and shopping centers for the tax benefits rather than for economic reasons. The boom in construction far exceeded expectations, to the point where supply overwhelmed demand and a number of "see-through" buildings were developed in selected cities across the nation. A "see-through" building is a glass office tower that has no tenants and was built for tax write-off rather than for cash flow. These deep-sheltered syndicates became a vehicle for the wealthy to write off passive losses against their ordinary income for as much as 2 for 1. The projects lost money, but that was the whole idea—the wealthy could avoid paying taxes this way.

In 1987, the new tax laws will eliminate these benefits in an effort to re-work the whole tax structure in a fair and equitable fashion. The changes will include extending the number of years a commercial real estate property can be depreciated over from 19.0 years to 31.5 years, allowing passive losses only to offset passive income, and taxing capital gains the same as ordinary income. All the 1981 benefits are being removed in an effort to curb overbuilding in the office market and to offset revenue losses when the maximum income tax bracket is lowered.

With the first release of the proposal, investors have been avoiding these deep-sheltered syndications, either going to investments that provide cash flow or altogether away from real estate until the new rules are finally laid out. The real estate market is in a changing period. The incentives that were given a few years ago are being taken away, and the way investors look at new development has shed a new light. Investors' priorities have switched from sheltering income to cash flow and residuals.

Currently, there is a national vacancy rate of 20.5 percent of commercial office space. Cities such as Dallas and Houston have vacancy rates that are much higher. The vacancies in Dallas alone probably represent as much office space as is available in cities such as Memphis and Nashville. How can this overbuilding be good for the economy of those cities and the nation? There might have been hope if development of these office spaces had been spread across the nation rather than concentrated in a few areas. The effect of the new tax code will slow the national economy for a while and really hurt areas that were overbuilt. In overbuilt cities the property values will fall and fewer syndicated buyers will be in the market. This will produce lower yields for investors. With a drop in yields and residuals, many loans will probably go into

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default, possibly causing failures of the banks and savings and loans that carried many of these syndication loans. Looking at a micro view of the industry one might say that the industry is doomed to failure, but the macro effect over time will create a much more sophisticated and efficient economy that creates value and good for the nation.

As lawyers and accountants are feverishly trying to decide what to tell their clients about how they will be affected by the new tax code, there will be a silver lining. Demand for commercial property will eventually catch up with supply, thus driving up rents which will increase cash flow and provide incentives for new development. Also, our most talented people will not spend all their energy and financial resources on schemes to avoid taxes, but rather to move the nation forward to a stronger more efficient economy. As the end of 1986 approaches, the U.S. will have a new tax code that will encourage real estate investment for economic reasons, rather than tax advantages. How can that be so bad?

Shorts. . . .

(Jackson, Mississippi) Small municipalities in the region are experiencing great difficulty in obtaining insurance coverage. According to area officials, the leading problem seems to be that the population base of the small townships isn't large enough to support the premium payment that would be required to give adequate coverage. Exposure is so great in some communities that official vehicles have up to $5,000 deductible clauses in the insurance agreement. Efforts are underway to initiate an insurance pool which would combine several communities to form a population base greater than the needed 500,000. Such a pool would provide affordable long-term insurance. (Source: *Jackson Daily News.*)

(Tampa, Florida) An old method of providing initiative to the private sector for the development of public works may be revived in Florida. The Florida legislature will award a franchise to one of at least seven consortiums currently bidding to develop a bullet train linking Miami and South Florida to Tampa and Orlando by 1995. The state isn't planning to finance the venture; rather, it will facilitate the process of obtaining permits to develop properties along the proposed route. The use of real estate to finance railroads dates back to the settling of the West by the grant of federal lands to railroad companies. The Florida train consortium would be in partnership with land owners along the route at proposed station sites and would develop the land or sell it to developers at an appreciated price. Land owners along the route but not at station sites will probably have to sell to the consortium at the market price which prevailed before the railroad venture. There is some skepticism that the real estate development alone will cover the enormous capital costs involved. The state may, in fact, have to cover some of the capital outlays to make the project viable. (Source: *The Wall Street Journal.*)

(Nashville, Tennesee) A French fact-finding delegation recently toured correction facilities run by Nashville-based Pricor and Correction Corporation of America. The two Nashville companies are industry leaders in the privatization of prison management. With prison overcrowding becoming commonplace and federal mandates against overcrowding facilities, many states will have to turn to the private sector to handle the overflow or simply let criminals out before the end of their sentences. The future is sure to see growth in the private operation of correction facilities. (Source: *Nashville Banner.*)

(Memphis, Tennessee) The Federal government is currently looking into new methods for the disbursement of data. The government now by mandate of law collects and issues data such as population characteristics and labor statistics. This information is at present made available largely through the Depository Library Program, although increasingly computerized data bases are being utilized. Efforts to reduce government deficits has the Office of Management and Budget (OMB) looking into new ways to curtail high rates of government spending. Some ideas under consideration include selling information to private firms that would then market it either in print or computer form, or the government itself selling the data. The former approach might be attractive to businesses that would be able to easily retrieve computerized data. The alternative to these possibilities, as seen by the OMB, would be to curtail some of the more esoteric publications. Information-oriented businesses might have a future in the marketing of government-gathered data in the field of customized data retrieval, combining several different statistical sources into a custom-fitted package. (Source: *Memphis Commercial Appeal.*)

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WORD PROCESSING PRACTICES AND PROCEDURES IN MEMPHIS AREA BUSINESSES

Lillian H. Chaney and Joe C. Otto[*]

Introduction

Technology has permeated all facets of the office environment from records management to telecommunications. An area that has undergone significant changes in the past several years is word processing. Word processing has evolved from the introduction of IBM's Magnetic Tape/Selectric Typewriter in the early 1960s to standalone word processors in the 1970s and the use of microcomputers for word processing in the 1980s.

A national study conducted by the Administrative Management Society (1985) reported that about 50.0 percent of secretaries in large corporations were using word processors; projections were for that figure to reach 75.0 percent by 1988. McWilliams (1983) projected that by 1990 every Selectric typewriter in every office would be replaced by a word processing computer. These may be "ambitious" predictions, but implications are clear. Businesses must take a competitive stance in order to survive today's "high-tech" invasion.

This survey was conducted in the spring of 1986 to determine current word processing practices and procedures in Memphis area businesses.

Population

The survey population was selected from the listing of firms included in the 1986 edition of *Who's Who in Memphis Business*. Included in the sample population were 145 companies. Firms were stratified by size, using the total number of employees and number of office employees; and by type, using the four classifications of manufacturer, retailer, service, and wholesaler.

Procedures

The survey questionnaire was developed after reviewing existing related questionnaires and incorporating suggestions made by business students and faculty members.

Questionnaires were mailed to 145 Memphis area businesses with a cover letter explaining the purpose of the survey and asking for cooperation in supplying the information requested.

A follow-up letter was mailed to the firms that had not responded by the designated deadline. Telephone calls were also made to non-respondents.

A total of 111 businesses completed and returned the survey form, for a response rate of 76.6 percent. Of the 111 firms responding, 12 did not currently employ word processing personnel. Findings were based on the responses from the 99 firms reporting the employment of word processing personnel.

Findings

The major findings of the survey are summarized in this section.

Total Number of Employees

Of the 99 firms reporting the employment of word processing personnel, 6.0 percent had a workforce of 49 or less employees; 10.1 percent had a workforce of 50 to 99 employees; 21.2 percent reported a workforce of 100 to 149 employees; 14.2 percent had a workforce of 150 to 199 employees; 13.1 percent had a workforce of 200 to 249 employees; 5.1 percent had a workforce of 250 to 299 employees; 1.0 percent had 300 to 349 employees; and the remaining 29.3 percent had 350 or more employees.

Number of Word Processing Personnel

A total of 56.6 percent of the 99 firms had five or less word processing employees; 27.3 percent had 6 to 10 word processing employees; 3.0 percent had 11 to 15 word processing employees; 3.0 percent had 16 to 20 word processing employees; 4.0 percent had 21 to 25 word processing employees; and the remaining 6.1 percent had 26 or more word processing employees.

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[*] *The authors are, respectively, Associate Professor, Department of Administrative Office Systems, Memphis State University, Memphis, Tennessee; and Assistant Professor, Department of Business Education and Office Administration, California State University - Los Angeles, Los Angeles, California.*

Primary Approach to Information Processing

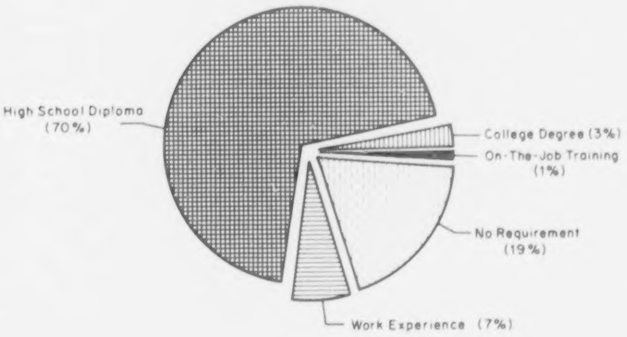
The majority of the firms (62.6 percent) used the decentralized or distributed approach to information processing. The remaining 37.4 percent used a centralized approach.

Education and Experience Requirements for Entry-Level Word Processors

The majority (69.7 percent) of the 99 firms responding required a high school diploma and work experience for their entry-level word processing personnel; 7.1 percent had no educational requirements but did require some work experience; 3.0 percent required a college degree and some work experience; 1.0 percent required some on-the-job training; and the remaining 19.2 percent had no specific educational or experience requirements for entry-level word processing personnel.

Figure 1

EDUCATION AND EXPERIENCE REQUIREMENTS



Keyboarding Skills Required

The majority (31.3 percent) of the 99 firms responding required keyboarding skills of 51 to 60 words per minute; 25.3 percent required skills of 61 or more words per minute; 10.1 required skills of 41 to 50 words per minute; 5.0 percent required skills of 40 or less words per minute; and the remaining 28.3 percent did not have a keyboarding requirement.

Beginning Yearly Salary of Word Processing Personnel

The majority (61.6 percent) of the 99 firms responding reported a yearly salary for beginning full-time word processing personnel of from $10,001 to $15,000; 12.1 percent of the firms reported a beginning salary of $10,000 or below; 11.1 percent reported $15,001 to $20,000; 1.0 percent reported $20,001 to $25,000; 12.0 percent reported having no full-time word processing employees; and the remaining 2.0 percent did not disclose the information.

Figure 2

KEYBOARDING SKILLS REQUIRED

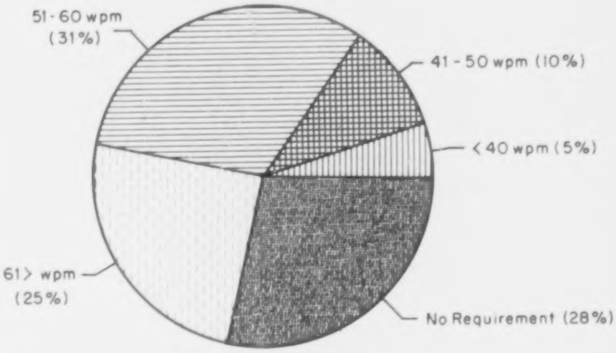
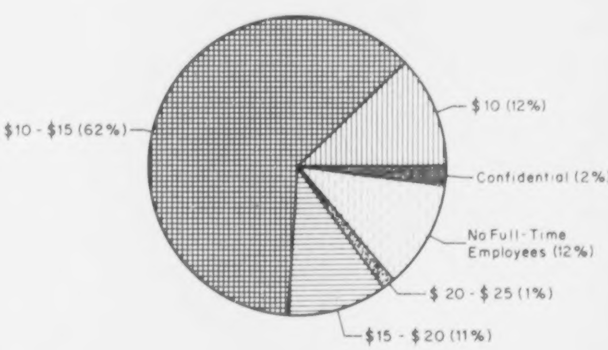


Figure 3

BEGINNING YEARLY SALARY OF WORD PROCESSING PERSONNEL ($ 000)



Types of Word Processing Equipment

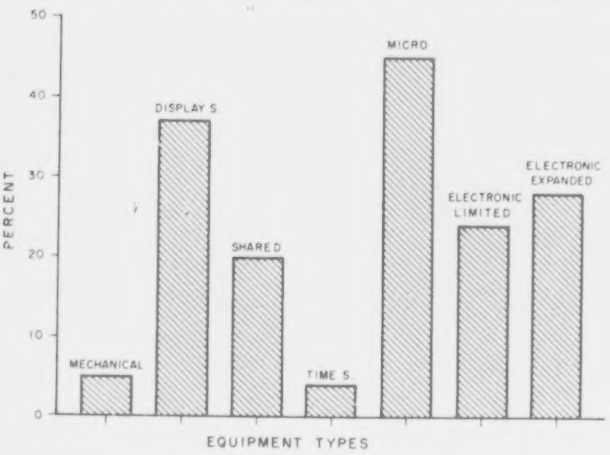
Five of the 99 firms reported the use of mechanical standalone word processors (MT/ST, Mag Card I, II); 37 reported the use of display standalone word processors; 20 reported that they used shared logic word processors; 4 reported the use of time-sharing word processors; 45 reported the use of microcomputers with word processing software; 24 reported the use of electronic typewriters with limited memory (five or less pages); and 28 reported the use of electronic typewriters with expanded memory, display, and interface capability.

Types of Magnetic Recording/Storage Media

The majority (75.8 percent) of the 99 firms responding reported the use of flexible diskettes as a type of magnetic recording storage device; 25.3 percent reported the use of hard disk storage systems; 4.0 percent reported the use of magnetic cards; 8.1 percent reported the use of cassettes; and the remaining 7.1 percent reported that they had no storage system.

Figure 4

TYPES OF WORD PROCESSING EQUIPMENT CURRENTLY USED



Printing Devices

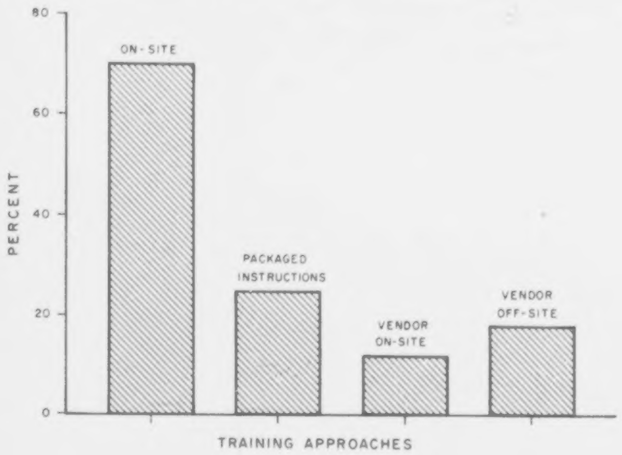
A total of 46 of the 99 firms reported using a dot matrix type printer; 69 reported using a daisy wheel type printer; 1 indicated the use of a thimble type printer; 9 reported using electrostatic (laser or fiber optics) methods; 4 indicated the use of the ink jet method; and 23 reported using a printer with a ball-shaped element.

Training Approach for Word Processors

A total of 70.7 percent of the 99 firms reported the use of on-site training with current employees serving as instructors; 25.3 percent reported the use of packaged instructional materials; 12.1 percent reported the use of vendor-provided on-site training; and 18.2 percent reported the use of vendor-provided off-site training.

Figure 5

MOST COMMON APPROACHES USED TO TRAIN PERSONNEL



Summary

Typical word processing practices and procedures of Memphis area businesses, according to the results of the survey, are given below:

1. The typical workforce is made up of 350 or more employees.
2. Most firms reported having less than five word processing employees.
3. The primary approach to information processing is usually decentralized or distributed.
4. The majority of firms require a high school diploma and work experience for their entry-level word processing personnel.
5. The majority of the firms require keyboarding skills of 51 to 60 words per minute, but a significant number do not have a keyboarding requirement.
6. The average yearly salary for a beginning full-time word processing employee ranges from $10,001 to $15,000.
7. The majority of the firms use microcomputers with word processing software.
8. The majority of the firms use flexible diskettes as a type of magnetic recording/storage device.
9. The majority of the firms use daisy wheel printers.
10. The most common approach used to train personnel on word processing equipment is on-site training using current employees as instructors.

According to this survey, word processing practices and procedures of Memphis area businesses are consistent with the national trend toward decentralization and use of microcomputers for word processing functions.

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THE USE OF MICROCOMPUTERS IN AUDITING

*Stanley D. Tonge**

Introduction

As power has increased and costs have gone down, potential applications for the microcomputer have grown at a rapid rate. The use of micros as an aid to accounting, writeup, and tax services is well known; but the use of micros as an audit tool has only recently become the focus of attention. As an audit tool the potential is so great, according to Keith Starnes, a computer audit specialist for the Memphis office of Peat, Marwick, Mitchell & Co., that they are taking the computer to the client's office instead of an adding machine—a paper and pencil are becoming obsolete. Some have suggested that the accounting profession is in the middle of a microcomputer revolution, and "the most pressing requirement for accounting professionals, therefore, is to begin preparing and planning for the microcomputer. . . ."[1]

The purpose of this study was to investigate the uses of microcomputers in auditing. The investigation consisted of two strands: (1) a general review of what microcomputers can do and (2) a survey of Memphis, Tennessee, area CPA firms to determine what is actually being done by practicing CPAs.

What Microcomputers Can Do

A General Overview

A general overview of what the microcomputer can do was obtained by conducting a review of the literature. White[2] has identified four phases in the use of microcomputers as an audit tool as follows:

- Automation of the audit process or use of the computer to do manual tasks such as time reports and audit papers
- Basic audit functions, including simple analytical review and sampling
- Advanced audit functions, such as accessing clients' files and use of remote data bases
- Audit module functions which include stand-alone audit data collection and continuous monitoring of a client's computer operations to create independent audit files

The key to effective use of the microcomputer is software. At present, there is a wide variety of commercial software available for all but phase four applications (above). In addition to the commercial software packages, several CPA firms have developed their own programs and, according to White, ". . . are redesigning their general audit software packages (GASPs) to run on the current generation of microcomputers."[3]

Peat Marwick's SEACAS (Systems Evaluation Approach-Computerized Audit Support) appears to be typical of firm systems. Serving as the centerpiece of Peat Marwick's computer-assisted auditing program, SEACAS can be used with both commercial and firm-developed software. Peat Marwick's goal was to implement SEACAS by use of a microcomputer on virtually every audit engagement by the end of 1986.[4]

Whether commercially- or firm-developed, the principal software applications generally fall into the following categories:

- Word processing
- Electronic spreadsheets
- Graphics
- Data base management
- Communications and networking
- Statistical analysis

The specific audit functions appropriate to each type of software are discussed in order.

Word Processing. Word processing is used for text preparation. Typical applications include engagement letters, carryforward workpapers, client correspondence, audit confirmations, and audit programs. The effectiveness of word processing programs has been significantly enhanced by the addition of merge and integration with other software package capabilities. With these newer packages, standard forms such as audit confirmations can be stored in the computer and merged with a mailing list contained in a separate file and printed for each of the selected addresses.

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A good example of how integrated word processing can be used to streamline the preparation of audit programs is provided by the firm of Frazee, Thomas and Tate of Memphis, Tennessee.[5] Based on comments by a peer review team, it was confirmed that a 50-page standardized audit program was not appropriate for a large number of smaller clients. Too many N/As were being checked off, which made it more difficult to determine whether the audit was properly conducted. As an interim step, the firm began cutting and pasting the large audit program to fit the individual clients. They have since coded and stored all the procedures from the standardized program in a microcomputer. Mandatory procedures such as those required for related party transactions are separated from discretionary procedures. The appropriate procedures for each client are selected by use of an input sheet, and the computer then prints out a tailored audit program.

Electronic Spreadsheets. Electronic spreadsheets have received the most attention in the literature. These spreadsheets have been hailed for their ability to perform many tasks with the same program rather than a separate program for each task. As a tool for financial planning and modeling, they probably have no equal. Once the basic worksheet and the computational relationships of each of the columns and rows are laid out, the ability to change assumptions and ask "what if" questions is virtually unlimited. For repetitive applications, an effective strategy is to develop templates or preformed worksheets so that only a few key variables have to be entered for each situation.

Other than for planning, the most frequent use of spreadsheets is to generate audit workpapers. They are especially useful when a lot of calculations are involved on a continuing basis such as carryforward schedules. A fairly sophisticated application involves the integration of the working trial balance with the lead schedules and the detailed evidence papers in such a way that any change is automatically flowed through to all of the affected papers. Roussey, an Arthur Andersen & Co. partner, suggests the process can be carried even further, stating, ". . . gone will be the working papers! It [the micro] will provide communications between audit team members . . . partners will review the audit as it progresses. . . ."[6]

Other spreadsheet applications include time budgets, staff scheduling, consolidations, depreciation schedules, present value calculations, confirmation control, financial statement analysis, trend analysis, and a wide variety of computations such as leases, percentages of completion, earnings per share, tax provisions, inventories, allocation of partnership income, interests, amortization, and gains and losses. With the introduction of integrated packages, the power of the spreadsheets used in conjunction with other software is limited only by the auditor's imagination.

Graphics. The use of graphics software is aimed primarily at improving the presentation of information. It has been said many times that "a picture is worth a thousand words." The picture enables users to grasp information more quickly, improves understanding, and shows clearly how seemingly unrelated pieces fit together. In the words of Purcell, ". . . a decision graph doesn't just present data . . . it's an analysis of data . . . which compares . . . possibilities . . . in such a way that makes priorities, risks and goals literally jump out from the data."[7]

Data Base Management. A more recent class of software includes data base management packages. The packages allow users to organize and keep track of a variety of records such as personnel files, billing rates, client information, and mailing labels. Data bases can be mathematically manipulated and data can be sorted, edited, selected, and reported on the basis of any number of predetermined criteria.

Peat, Marwick, Mitchell & Co. uses a data base to maintain information on general economic conditions and industry-specific trends to facilitate analytical review.[8] Similarly, the firm of Kaufman, Rossin & Company in Miami, Florida, maintains a ten-year data base of selected financial data for each client. Current year estimates are entered at the completion of the preliminary field work. Ratios are calculated for a ten-year period and presented graphically to identify the areas of greatest potential risk.[9]

Communications and Networking. The effectiveness of data bases has been greatly enhanced by the development and integration of communications software. Data can not only be sent from one location to another, but can be accessed from remote locations. Many of the CPA firms use this capability to access data, via telephone lines or on site, directly from the client's computer for subsequent analysis.

Because data can so easily be accessed and transferred, it reduces the need for data redundancy. For example, the accounts receivable balance only has to be entered in one file and can be subjected to multiple audit procedures. Multiple use of the same data also minimizes the need to disrupt the client's system for more data as the audit progresses.

Several firms are storing authoritative literature in an electronic library where it can be accessed instantaneously from field locations. The obvious advantage is eliminating the need to carry voluminous manuals to the field. Additionally, the electronic library is easier to keep up-to-date, which reduces the chance of using obsolete or nonrelevant information.

The communication and networking software has also made it possible to utilize the advantages of both mainframe and microcomputers. Large data bases such as permanent client information can be stored and processed at central locations using the cheapest and/or most effective techniques compatible with the overall objectives. At the same time, each of the field locations has computer power at its disposal. Furthermore, the micros can interface with each other, thus allowing data to be transferred from one field location to another. To further reduce cost, required permanent file information can be loaded into the micro before going to the field. The permanent data file would then be updated at the completion of the audit, rather than using the more expensive on-line entry and edit.

Statistical Analysis. Statistical analysis software appears to have been extensively developed on a proprietary basis. White states that commercial software which is capable of downloading a client's data bases and performing statistical analysis is now available.[10] This writer was not able to locate such a package in the Memphis area, however.

An alternative to using the integrated statistical analysis packages is to do the operation in two steps. The first step would be to use the utilities provided with the client's computer to access or manipulate the files. According to Clowes,[11] the utilities can:

- —Sort files according to record keys, e.g., customer number
- —Merge two or more data files by reference to a record key
- —Copy a data file from one computing device to another

Once the data is selected, analysis can be performed with the use of a stand-alone statistical analysis package such as *Stat Pac*. An electronic spreadsheet could also be used by putting in the appropriate formulas.

What is Actually Being Done

The Survey

To find out what was actually going on in the practice of accounting, Memphis, Tennessee, area CPA firms were surveyed by use of a questionnaire. Of the 43 firms surveyed, a total of 24 or 56.0 percent responded. Two of the 24 responses were from firms which were not using micros for auditing applications. As a result, the survey produced 22 usable responses or 51.0 percent of the total survey population.

A General Overview of the Surveyed Firms

Because a substantial number of respondents did not supply information, the type of practice was used instead of firm size. Based on the available information, however, it appears that local and regional firms are about the same size and generally smaller than national firms. A breakdown of the types of practices was as follows:

	Use Micros	Do Not Use Micros
National Firms	8	0
Regional Firms	4	0
Local Firms	10	2
	22	2

As indicated by the following list, the IBM PC and Compaq were the most popular microcomputers currently in use:

Computer Type	Number of Firms Owning
IBM PC	12
Compaq	12
IBM XT	6
Apple (including MacIntosh)	6
Radio Shack	5
Osborne	2
Miscellaneous (1 per type)	4

The miscellaneous category includes an IBM AT, DEC Rainbow, Digital, and a Victor 9000. The total number of firms exceeds 22 because some firms own more than one type of computer.

Auditing Applications

The results of the survey with respect to the number and percentage of firms indicating specific applications or usage are shown in Table 1. To get a clearer picture, however, the most frequent applications, in descending order, are shown below:

	Ranking			
Application	Overall	Nat'l	Reg'l	Local
Fin'l Modeling	1	1	1	1
Engage Mangmt	2	3	4	2
Word Processing	2	1	4	4
Fin'l Statements	4	8	2	2
Analytical Review	5	3	8	4
Prep Next Yrs W/P	6	5	4	9
Workpaper Storage	6	5	8	4
Workpaper Edit	6	5	8	4
Statistical Sampling	6	8	2	9

Clearly, financial modeling is the dominant application, as indicated by a number one ranking across all firm types. As shown in Table 1, financial modeling is used by 100.0 percent of the national and regional firms and 80.0 percent of the local firms. This result contradicts a 1982 study which found that only 62.0 percent of the firms were using spreadsheets in their audit work and that 90.0 percent of the users were the larger firms. As stated in the study, however, "In the fall of 1982 . . . the use of electronic spreadsheets in auditing was only slightly beyond the embryonic stage. Recent conversations with auditors indicate that the use has significantly increased."[12] The results of this study confirm increased use by firms of all types and sizes.

Usage also appears to be fairly consistent for word processing and engagement management. The relatively low ranking for statistical sampling by national firms was somewhat surprising. As indicated in later discussion, statistical sampling is a fairly important application for those firms using micros for that purpose. Accordingly, the low usage suggests that some national firms have not yet converted their statistical sampling applications to the microcomputer, rather than non-use, per se.

Since usage is not always consistent with importance, Table 2 shows the relative importance of the applications. Table 2 also includes the standard deviation with respect to the mean responses as an indicator of the degree of agreement among the firms. The greater the standard deviation, the less the agreement. Given the discrete response scale, in increments of 1, a standard deviation of 1 means that two-thirds of the responses were within ± 1 of the mean response. In the case of a single response, the standard deviation is automatically equal to 0, but hardly indicates a high level of agreement among the firms. Therefore, single responses are separately identified as not applicable (n/a).

As with usage, the relative importance has been ranked in descending order and is shown below:

	Ranking			
Application	Overall	Nat'l	Reg'l	Local
Fin'l Statements	1*	1*	2	1*
Workpaper Prep[1]	2*	-	-	2*
Analytical Review	3*	4*	3**	5
Prep Next Yrs W/P	4*	3*	6	2*
Stat Sampling	4	1*	6	2*
Fin'l Modeling	6*	7*	1*	8*
Workpaper Storage	7*	6*	10**	5*
Workpaper Edit	8	8*	10**	9*
Word Processing	9	10	3	5*

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* = Standard deviation equals 1 or less.

** = Standard deviation equals 0 due to single response.

[1] Respondent provided application.

Because internal control evaluation was limited to a single firm, the application was excluded from the tabulation. To

Table 1

SUMMARY OF AUDITING APPLICATIONS

	Nat'l		Reg'l		Local		Total	
Applications	No.	%	No.	%	No.	%	No.	%
Engage Mangmt	7	88	2	50	6	60	15	68
Workpaper Storage	6	75	1	25	5	50	12	55
Workpaper Edit	6	75	1	25	5	50	12	55
Prep Next Yrs W/P	6	75	2	50	4	40	12	55
Fin'l Statements	5	63	3	75	6	60	14	64
Statistical Sampling	5	63	3	75	4	40	12	55
Fin'l Modeling	8	100	4	100	8	80	20	91
Analytical Review	7	88	1	25	5	50	13	59
Client File Review	2	25	1	25	5	50	8	36
Retrieve Data	1	13	1	25	4	40	6	27
Data Transfer	3	38	1	25	3	30	7	32
Graphics	3	38	1	25	4	40	8	36
Prep Audit Programs[1]	5	63	2	50	4	40	11	50
Word Processing	8	100	2	50	5	50	15	68
Workpaper Prep[1]					2	20	2	9
IC Evaluation[1]	1	13					1	5

[1] Application based on response to "other" category.

Table 2

RELATIVE IMPORTANCE OF AUDITING APPLICATIONS[1]

	Nat'l		Reg'l		Local		Total	
Applications	Mean	Dev.	Mean	Dev.	Mean	Dev.	Mean	Dev.
Engage Mangmt	2.43	.98	3.00	1.41	2.50	1.22	2.53	1.06
Workpaper Storage	1.83	.75	4.00	n/a	1.80	.84	2.00	.95
Workpaper Edit	2.00	.89	4.00	n/a	2.20	.84	2.25	.98
Prep Next Yrs W/P	1.50	.55	3.00	1.41	1.50	.58	1.75	.87
Fin'l Statements	1.20	.45	1.67	1.15	1.33	.52	1.36	.63
Stat Sampling	1.20	.45	3.00	2.00	1.50	.58	1.75	1.21
Fin'l Modeling	1.88	.94	1.50	1.00	1.88	.99	1.80	.95
Analytical Review	1.57	.53	2.00	n/a	1.80	1.30	1.69	.85
Client File Review	3.00	2.83	3.00	n/a	2.20	.84	2.50	1.31
Retrieve Data	5.00	n/a	4.00	n/a	2.25	.50	3.00	1.26
Data Transfer	3.67	1.53	4.00	n/a	2.33	.58	3.14	1.21
Graphics	4.00	.00	5.00	n/a	3.50	1.29	3.88	.99
Prep Audit Program	1.80	.84	2.50	.71	3.00	1.63	2.36	1.21
Word Processing	2.75	1.16	2.00	1.41	1.80	.84	2.33	1.11
Workpaper Prep[2]					1.50	.71	1.50	.71
IC Evaluation[2]	1.00	n/a					1.00	n/a

[1] Dev. = Standard deviation - for those applications with only one response, the standard deviation is 0 and indicated above as n/a.

[2] Application based on response to "other" category.

better understand the mean response rankings, the standard deviations are also identified. The 1.0 cutoff point was selected on the basis of the earlier discussion concerning the 1.0 incremental response scale. Single response rates were also identified for reasons previously discussed.

While the applications listed in the above tabulation differ from usage only by the substitution of workpaper preparation for engagement management, the order is considerably different. For example, financial modeling, first in usage, is only sixth in importance. The discrepancy for statistical sampling has already been pointed out. With the exception of word processing and financial modeling, there is, again, a fair degree of consistency and agreement among the firms as to the relative importance of the applications. Only the regional firms had widely varying responses, as indicated by the standard deviations. The variation may be due more to the small sample size (n=4) than to lack of agreement, however. The responses could also vary depending upon whether the firm was a home or branch office.

Workpaper preparation is a special case. Because the application was not included in the questionnaire, it is unclear whether it is a non-usage or the use was forced into one of the listed applications. Under the assumption that it was forced, the most likely application would be workpaper editing. If workpaper preparation and editing were combined, the application would have been ranked fourth in usage and sixth in relative importance.

Conclusions

Considering frequency and importance together, current microcomputer auditing applications in the Memphis area are:

- — Financial modeling
- — Financial statement preparation
- — Preparation and editing of audit workpapers
- — Preparation of next year's workpapers, which is facilitated by the storage of the current year's papers
- — Analytical review
- — Statistical sampling
- — Word processing

If Memphis area CPA firms are typical of all CPA firms, the use of the microcomputer for auditing applications has increased significantly over the last few years. Overall usage still falls far short of the potential, however. Very few firms, the nationals included, are using the micro for all or most of the applications listed in the survey.

One possible reason for the failure to reach full potential is an inadequate supply of microcomputers. Even though cost has been decreasing at a rapid rate, a typical microcomputer system still runs in the $3,000-$5,000 neighborhood. While a large number of firms have plans to acquire additional units in the near future, they will still be underutilized unless current and new staff members are adequately trained in appropriate microcomputer skills. As more universities add microcomputer training to their curricula, as Memphis State University is doing, it is expected that the use of microcomputers in auditing will gradually reach its full potential. Training of existing staff members through continuing education should hasten the evolution.

Footnotes

[1] Clinton E. White, Jr., "The Micro Computer As an Audit Tool," *Journal of Accountancy* (December 1983), pp. 116-120.

[2] Ibid.

[3] Ibid., p. 120.

[4] John D. Collins, "High Tech Auditing Has Arrived," *World* (Peat Marwick), Vol. 18, No. 4 (1984), p. 22.

[5] John W. Thomas, Jr., "A Tailored Computerized Audit Program," *Journal of Accountancy* (November 1984), pp. 173-178.

[6] Robert S. Roussey, "Microcomputers and the Auditor," *Journal of Accountancy* (December 1983), pp. 106-108.

[7] W. R. Purcell, Jr., "Building Management Advisory Services Through Graphics," *Journal of Accountancy* (June 1983), pp. 42-43.

[8] Collins, p. 22.

[9] Lee B. Spencer, Jr., "The Electronic Library: Impact On Professionals," *Journal of Accountancy* (August 1983), pp. 74-78.

[10] White, p. 120.

[11] Kenneth W. Clowes, "Your Client's Computer: A Silent Partner," *CA Magazine* (August 1980), pp. 53-59.

[12] Mary R. Golden and Charles W. Golden, "Electronic Work Sheets: An Audit Tool," *Journal of Accountancy* (April 1984), pp. 38-42.

OGG SPEAKS TO YOU

*Roger G. Nibler**

Ogg lived in a lush, steamy jungle during the Paleontological era. His slanted forehead; protruding jaw; long, gangly arms; and stooped posture reminded him only too much of his possible origins. However, he did have a fair memory combined with an ability to think in an abstract level well beyond the other inhabitants who shared the jungle with him.

The main problems facing Ogg centered around improving his transportation methods and dealing with various creatures who sincerely wanted to have him for lunch. He was especially fascinated with new methods of transportation which would allow him to roam a wider area and thus satisfy his curiosity regarding what was beyond the farthest grove of trees (usually another grove of trees).

After gazing upward and observing what he presumed to be his cousins, he decided to give the swinging-from-the-vine method a try. His first attempts met with one crashing failure after another. There are many ways to hit the jungle floor from a Banyon tree, and Ogg was convinced he had discovered most of them. Gradually Ogg learned that it was best to continue holding the present vine, test the strength of the vine ahead of him, and then make the switch only after he was satisfied the new vine would support his weight and head him in the desired direction. Keeping hold of the present vine too long, on the other hand, usually resulted in his swinging backward and slamming into a tree. This proved costly to both progress and posterior. Once he mastered his vine swinging technique, his range of travel increased tremendously. Etched in Ogg's mind was the following rule: "TEST THE NEW VINE BEFORE LETTING GO OF THE PRESENT VINE."

Ogg's excitement over his new accomplishment stimulated his fantasy considerably more than his intellect, and he became obsessed with the notion of moving to the cutting edge of transportation technology. After making several inquiries, he learned that a creative person named Gronk had developed an object that could travel at great speeds when released from a hill, or better yet, a mountain. The object was carved from stone, round in shape, and once set in motion had little respect for anything in its path. When he saw the demonstration of this new device, he screamed "Whee!!" The resulting echo from the hillside came back with an "l," and the name stuck.

Ogg reasoned that all he had to do was be strapped to the top of the wheel and wherever the wheel went he had to go as well. No sense in launching from a hill, let's go for the mountain. On the day of the launch, several curious onlookers gathered to witness this epochal event. The mate of his brother, Grut, gave him some berry cookies to munch on during his journey to the valley below. Soon after the wheel began its accelerating course down the mountainside, Ogg learned that unless one is willing to pay the price, it is best to "STAY AWAY FROM THE CUTTING EDGE OF TECHNOLOGY." Unfortunately for Ogg, he had to learn this lesson over . . . and over . . . and over.

Grut comforted Ogg as best he could while assisting him back to his cave. The rapid transit system had resulted in more aches and pains than Ogg cared to remember. As they approached the cave, he began to nudge Grut over the hill toward the back entrance. Grut was somewhat perplexed by this circuitous route and began to question Ogg's reasoning, especially after such a hard day on the mountain. Ogg replied that a Saber-toothed tiger had occupied the mouth of the cave, and that this detour appeared to be the safest direction to take. He also cautioned Grut to bear to the left side of the cave because a large spider occupying a crevasse in the wall was likely to give a nasty bite to anything coming near it.

Grut suggested that these annoying, time-consuming measures be eliminated by smashing the spider and neutralizing the tiger. Ogg glanced back at Grut, who by now had become the first Management Consultant. He wondered if the credibility of Grut's advice could be enhanced if he dressed and spoke a bit more formally. After some careful pondering, Ogg decided that the only thing wrong with the plan was that he did not come up with the idea. He also wondered if Management Consultants could provide methodologies to accompany their counsel. After Grut assured him that this was the case, Ogg hoped that he was not experiencing a vanishing breed.

The spider was easily squashed, but Ogg was still disappointed that he had not come up with this simple solution. Actually, after many entrances through the back of the cave, he had given little thought to either the spider or the Saber-toothed tiger and had simply developed a habit of these avoidance strategies. To deal with the Saber-toothed tiger, Grut made use of the four berry cookies collected on the way up the mountainside. The technique used to encourage the tiger to vacate the premises was dubbed the "Wheresmy" method. On each of four successive days, Ogg and Grut scrambled to the top of the front entrance and dropped a cookie near the mouth of the cave. Upon returning each day, they observed that the cookie from the previous day was gone. The fifth day they stood, one on each side of the cave, with their clubs poised. Near sundown the tiger poked his head out and roared to the effect, "Where's my cookie?" Wham! . . . . Wham!

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John's glass blowing business had grown steadily over the past six years and had reached the point where he felt that he was losing control. Costing methods, which could previously be done mentally or scratched on a few pages of yellow pad, now took the painful part of a week to grind out. The customer base had grown from less than ten on the day the business opened to over a thousand. The bank was demanding more rigorous and detailed financial data to accompany John's increasing requests for additional working capital to sustain his growing business.

One day he received a glossy flier in the mail. The top of the flier carried the brightly colored message, "LOSING CONTROL? DON'T WAIT - AUTOMATE." The vendor offered a "bundled package" that was "state of the art in all respects." The vendor went on to declare that there was "no firm offering a more advanced data processing system." The most amazing claim was that they specialized in providing data processing services to the glass blowing industry. The system could be installed for less than $10,000 and be fully operational in about four months. John filled out the self-addressed, postage-paid reply card perforated on the flier. He was careful to mark the square indicating, "YES! PLEASE SEND ME MORE INFORMATION ABOUT YOUR FULLY AUTOMATED SYSTEM."

By the end of the week, John received a call from Bill Smith. He wanted to establish a time for them to meet, preferably during lunch. They could then more fully discuss the complete capabilities of the system in a relaxed atmosphere.

During lunch, Bill talked in fluent "computerese." He had majored in computer science at a large state university and had attended many seminars. Not only did he appear qualified, but the letters he shared with John from companies similiar to John's extolled the virtues of the system. It was unquestionably the most advanced system on the market. To this day, John still remembers Bill's departing words after the luncheon, "Let's face it, John, it's a real jungle out there. If we can be part of your team, I promise it will be a down hill battle from this point on."

The installation of the new system fell behind schedule sometime during the second month. There were cost overruns which, according to the vendor, were due to advances in technology which had taken place during the three months since the signing of the contract. John was astonished to learn that the computer industry was changing so rapidly. But he really did not mind paying the additional $3,357 for the new equipment used to "balance the parity check and reduce the overhead of the byte swap interchange rate" if it would significantly increase processing speed.

During the installation, John was informed that he would need to hire someone to operate the system. In addition, his staff would need training to enter the data and print the reports. The vendor located a programmer/analyst and provided training sessions for his personnel. There were additional fees for these services, of course; but by now, John was beginning to realize that he had little choice but to incur these escalating costs. At one point, John began to get a bit irritated at the increased costs and started to question the reasoning behind the installation delays, which now amounted to six months. But during a luncheon with Bill, his concerns were eased. Bill explained that staying on the forefront of technology is no easy task, but that soon John's company would be earning a handsome profit as a result of the timely and accurate information generated by the new system.

The day of the conversion finally came, and the company could now "step proudly into the dawn of the twenty-first century." When John suggested that they operate the present system along with the new system for one month to see how the financial, inventory, and costing figures compared, he was assured that a proven data processing system had been carefully installed. Besides, it would be too much to expect his staff to operate the new system and still be required to crunch numbers the old-fashioned way. The other firms had all gone directly to the new system. This approach makes sense, that's why it's called "Cold-Turkey."

John could not quite describe his exhilarating feeling. The company was finally on the automated system. He had been liberated from the manual system and for an instant he had the sensation of being almost . . . well . . . airborne. Now he could take hold of this new system and begin regaining control of his business.

During the following four months, reports came out of the new system with regularity. The Statement of Financial Condition balanced, and the costing figures were calculated to a thousandth of a percent! Although some of the costing and inventory figures appeared to be out of line, he was assured by the vendor that this was to be expected because he was now receiving data which was not susceptible to human calculation errors. He was further assured that standard costing methods were used in his new system. Based on these costing figures, John adjusted his prices accordingly.

During the last four months of the year, John's company progressively lost money. Sales of some items dropped, while sales of other items increased dramatically. Overall, sales increased, but profits continued to plummet.

The end of the fiscal year would have to come on a typical dark, drizzly day. It only seemed to underscore his financial problems. And to compound these difficulties, the vendor was pressuring for the final balloon payment. John had been trying for two weeks to contact Bill, but as yet Bill had not returned the calls. John's attention shifted from the latest costing report to the bookkeeper who was busy calculating figures on a yellow pad. When John asked the bookkeeper what he was doing, he replied that he questioned the ability of the computer to properly handle the data for the costing reports. There appeared no way around this problem but to perform hand calculations and then enter that data during a later stage of processing. When John asked the bookkeeper why he had not brought this to his attention earlier, the bookkeeper shrugged and said that he had become used to performing this step. It had now become simply a matter of habit.

At this point, John's frustration had turned to depression. Was it possible that these hand calculations were contributing to the costing problem? Was there a costing problem? John left the office and walked down the street for a breath of fresh air and an opportunity to get away from the irritating hum of the disk drives. As he approached a playground, his eyes seemed to be almost forcefully drawn to a rope dangling from the branch of a large tree. He did not know why, but he walked over to the tree, tightly grabbed the rope, and began swinging slowly back and forth. And for a moment . . . just a brief moment . . . he thought he heard someone laughing in the tree.

CREDIT UNION SIZE AS A CAUSE FOR DIFFERENT OPERATING CHARACTERISTICS

*Theodor Kohers and David Mullis**

Introduction

General deregulation of the financial sector and financial innovations have increased the supply of credit to households. The total debt of households in the United States now exceeds $2.0 billion [10]. The experience of the past few years indicates that credit unions are well positioned to prosper in a deregulated environment. For example, one out of every five adults belongs to a credit union. This represents a greater penetration of the consumer market than anyone but Sears [15]. One interesting question is, how can credit unions that are small, poorly capitalized, limited in powers, and virtually invisible to the general public be well positioned to compete in today's market place?

Credit unions are truly unique among financial institutions. They are consumer financial cooperatives in which the consumers are united by some common bond. This common bond may be occupational, associational, or residential, with occupational groupings accounting for approximately 80.0 percent of all credit unions. Funds are derived almost entirely from members' share accounts. These accounts are typically small and are aided by payroll deductions by the employer. Credit union funds are used almost exclusively for installment loans to members, with varying amounts of funds in secure accounts for the purpose of providing liquidity.

Traditionally, credit has been limited almost solely to consumer loans, although loans have also been extended to other credit unions, and some government securities or deposits in other institutions have been held for liquidity purposes. The requirements that credit unions lend to members only and accept deposits from members only are the major factors explaining the relatively small size of these institutions.

Relaxation of restrictions, such as on type of lending, on the nature of the common bond, and on dividend ceilings on deposits, are major explanations for the rapid growth of credit unions. Some 16,000 credit unions are reaching out for greater size. Still, seven out of eight credit unions have assets of less than $5.0 million [8, p. 66]. Disadvantages of only a few years ago that accrued to an institution's small size are eroding. Expensive, repetitive processing costs which inhibited smaller institutions are fading in two respects. First, large institutions are selling such services at cost (directly based on usage); and second, technological improvements, such as new generations of mini- and micro-computers with up-to-date software, have brought processing costs down dramatically.

Are the assumed advantages of credit unions (such as ease of borrowing, higher rates on deposits, smaller loan delinquency rates, and fewer institutional failures) independent of size? Do the benefits of the common bond continue to exist at larger credit union sizes?

Recent financial research on credit unions has concentrated on explaining credit unions' operating procedures [2, 4], goal setting [11, 12], and economies of scale [1, 5, 13, 14]. But these studies have largely ignored the impact of size on a credit union's behavior. Because of the common bond requirement, credit unions have a very localized market and, obviously, the smaller the occupational parent unit, the more localized the credit union's market. The size differences in credit unions may serve as an explanation or predictor of varying behavior and performance differences. Furthermore, as the size of the credit union increases, the number of full-time employees and the amount of professional training given to those employees also increase. Larger credit unions, therefore, could be expected to have a different type of management and a broader market with more competition as compared to the smaller ones. Therefore, it may be assumed that larger credit unions exhibit different behavioral characteristics compared to their smaller counterparts.

Conceptual Differences in Credit Union Behavior

This study examined some factors of behavior which illustrate how occupational credit unions differ from each other depending on their relative size. The size of the credit union is measured on the basis of the institution's asset size. As of 1982, the National Credit Union

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MID-SOUTH ECONOMY

BUREAU OF BUSINESS & ECONOMIC RESEARCH THE FOGELMAN COLLEGE OF BUSINESS AND ECONOMICS MEMPHIS STATE UNIVERSITY

STATISTICAL SUPPLEMENT

THE MID-SOUTH ECONOMY

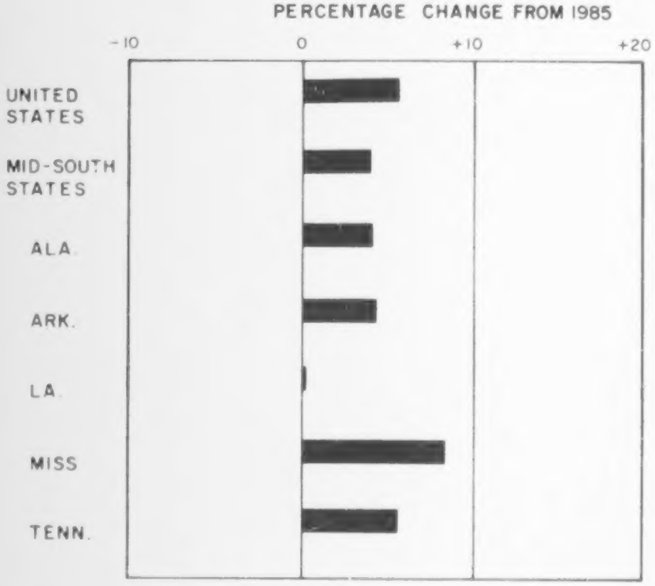
As 1986 ends, the current expansionary phase is two months into its fifth year. And, if growth continues throughout 1987, this phase will become the second longest expansionary period since WWII. The consensus forecast for 1987 is for sustainable but subpar (by historical standards) growth. Forecasters generally foresee anemic growth in the U.S. economy during the first half of 1987 and renewed strength during the last half of 1987 and the first half of 1988. A large portion of the positive outlook is tied to: (1) a shrinking of the nation's international and federal deficits; (2) modest increases in business capital investment; (3) no major changes in interest rates (slightly lower during the first half of 1987, then rising slowly as the economy picks up); and (4) the unlikely reappearance of inflationary pressures over the next eighteen months. Sluggish growth is expected during the first half of 1987 due to a slowdown in consumer spending and a wait-and-see attitude on the part of business concerning the new tax laws. Also, growth in the construction industry is expected to slow down sharply due to tax law changes that affect real estate. Office and apartment construction is expected to be hardest hit. Consumers are expected to retrench due to the high ratio of consumer debt with respect to personal income and the historically lower personal savings rate, which is currently half the normal rate of 6.0 percent. In addition, the corporate sector is expected to be cautious due to the realignment of investment decisions based on the new tax laws and a generally mediocre outlook for profits. Job growth is expected to continue, but it is not expected to be enough to substantially decrease the nation's unemployment rate.

For the Mid-South states, personal income growth has slowed; Mississippi was the only Mid-South state which outperformed the national income gain of 5.6 percent. The overall gain for the Mid-South states was 3.9 percent, primarily due to no growth in Louisiana and only moderate growth in Alabama and Arkansas. Tennessee matched the national gain with an increase of 5.5 percent. Between May and September, total employment across the Mid-South states increased 2.2 percent compared to the national gain of 1.2 percent. Elsewhere, a recent study by the Small Business Administration ranked states according to new business incorporations and the number of bankruptcies between 1980 and 1985. In terms of new incorporations, Alabama ranked 5th, Arkansas 20th, Tennessee 22nd, Louisiana 39th, and Mississippi next to last at 51st. Ironically, in terms of bankruptcies, Alabama had the highest rate with a ranking of 45th. Tennessee had the next highest bankruptcy rate (30th), while Mississippi, Arkansas, and Louisiana ranked 13th, 11th, and 9th, respectively. Based on the rankings, Arkansas appears to have the most balanced growth between new incorporations and bankruptcies.

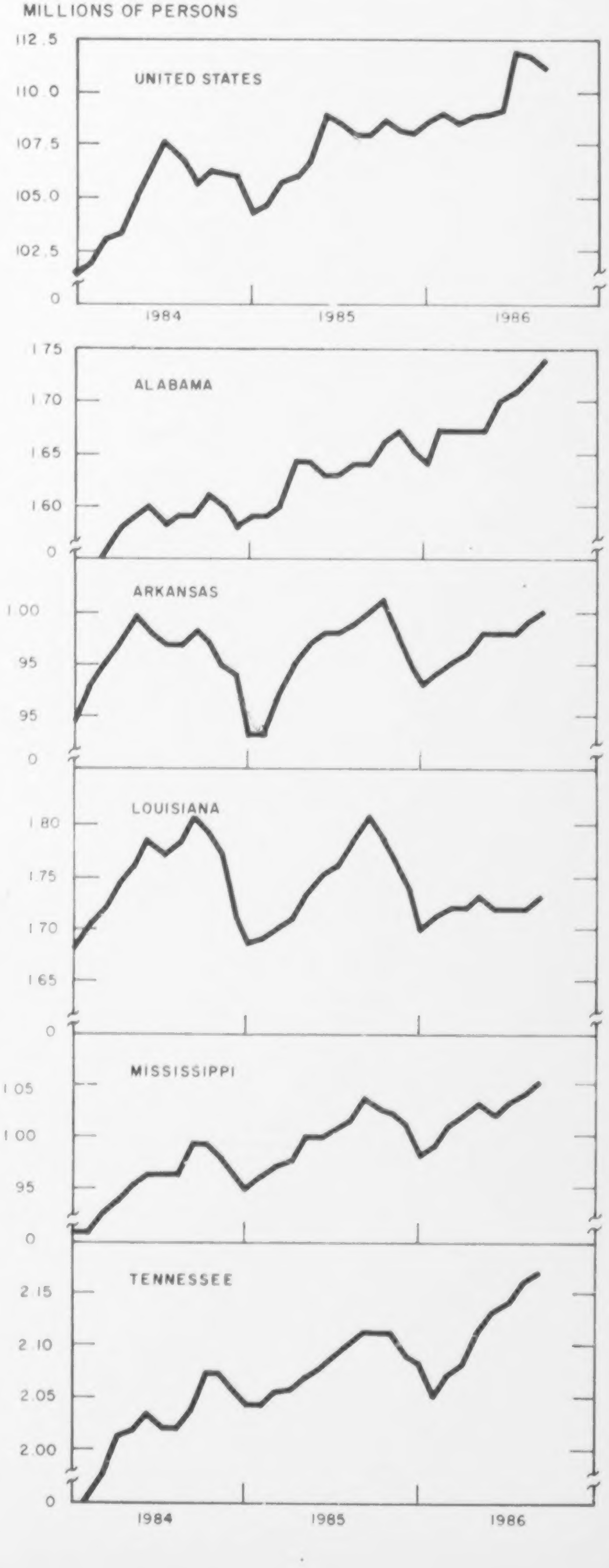
LABOR

The nation's unemployment rate continues to hover in the 7.0 percent range, reflecting a stalemate between growth in the civilian labor force and growth in jobs. In general, the number of persons unemployed has, on average, totaled approximately 8.1 million for the last two years. Manufacturing employment has also remained relatively stable at slightly more than 19.0 million, with non-manufacturing employment growing 3.0 percent over the last twelve months. With manufacturing employment relatively stable, any further declines in the nation's unemployment rate will depend on the economy's ability to create jobs faster than the growth in the civilian labor force. As a whole, the Mid-South states are experiencing a similar stalemate, although several states have registered substantial increases in their unemployment rates. For October 1986, the unadjusted aggregate unemployment rate for the Mid-South stood at 9.8 percent, a 1.1 percent rise since last October and 0.3 points higher than October 1984. Job growth in Arkansas and Tennessee has kept pace with the growth in their civilian labor forces. However, Alabama, Mississippi, and Louisiana experienced substantial growth in the number of persons unemployed, causing their unemployment rates to rise dramatically. Total non-agricultural employment across the Mid-South grew 1.2 percent from October 1985 to October 1986, generally matching the growth in the Mid-

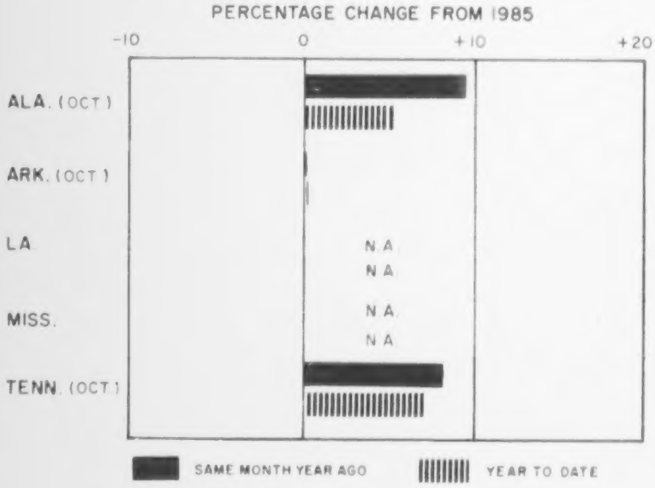
PERSONAL INCOME - II QTR. 1986



TOTAL EMPLOYMENT



SALES TAX COLLECTIONS 1986



SOURCES: BUREAU OF ECONOMIC ANALYSIS
STATE DEPARTMENTS OF EMPLOYMENT
SECURITY AND REVENUE.

South's civilian labor force which increased 1.4 percent. Mid-South manufacturing employment was marginally lower during the period, while non-manufacturing employment grew by 25,400 persons. Louisiana was the only Mid-South state to register a decline in non-manufacturing employment.

Employment figures for Mid-South manufacturing sectors indicated that durable goods production registered gains in lumber/wood products (2,200), furniture/fixtures (2,600), and transportation equipment (3,000). On the non-durables side, food/kindred products added 7,600 jobs, with printing/publishing increasing by 1,500 workers. On the non-manufacturing side, government employment was little changed for the Mid-South as a whole, with Louisiana registering the largest decline (2.3 percent) and Tennessee registering the largest increase (5.7 percent). The remaining Mid-South states were relatively unchanged.

Most of the major metropolitan areas of the Mid-South had increased unemployment rates, except for New Orleans (LA) which had a slight decline from 11.0 percent to 10.8 percent. The unemployment rate climbed 2.0 percentage points in Birmingham (AL), 1.3 percentage points in Little Rock (AR), and 1.2 percentage points in Jackson (MS). The unemployment rate for Memphis increased only 0.2 percentage points.

CONSTRUCTION

After four years of steady increase, growth in the construction sector is expected to slow down. Recent strength in the construction sector is the temporary result of activity caused by impending tax law changes which are expected to fall heavily on real estate. Housing starts for 1987 are anticipated to fall below the 1.8 million annual pace registered during the first ten months of 1986. Single-family units are expected to remain relatively high at approximately 1.2 million units. Multi-family units, which account for one-third of the market, will be hardest hit. Apartments are generally considered to be overbuilt, and vacancies are slowly rising to near record levels. Office building construction is also expected to be adversely affected by tax law changes, causing a decline in activity for this previously robust sector.

Construction employment across the U.S. climbed 6.0 percent from year-ago levels, while construction employment in the Mid-South registered a decline of 3.7 percent. Louisiana experienced the largest decline (14.7 percent), followed by declines of 3.2 percent in Mississippi and 1.9 percent in Alabama. Tennessee registered the largest increase in construction employment, up 5.4 percent, while Arkansas reported a gain of 1.6 percent.

LABOR 1986	United States (Sept.)	Mid-South States				
		Alabama (Oct.)	Arkansas (Oct.)	Louisiana (Nov.)	Mississippi (Oct.)	Tennessee (Oct.)
Civilian Labor Force	118,244,000	1,917,000	1,097,700	1,968,600	1,174,600	2,333,900
Percent Change Year Ago	+2.1	+ 5.1	+ 2.1	- 1.0	+ 2.9	+1.9
Unemployed	8,015,000	181,000	90,300	264,700	129,800	166,300
Percent Change Year Ago	+0.4	+23.2	+11.8	+18.0	+25.2	+2.1
Unemployment Rate						
1986	6.8	9.4	8.2	13.4	11.1	7.1
1985	6.9	8.0	7.5	11.3	9.1	7.1
Non-Agricultural Wage & Salary Employees	100,368,000*	1,453,600	837,800	1,518,100	860,400	1,976,300
Percent Change Year Ago	+2.3	+ 1.2	+ 2.6	- 5.5	+ 0.9	+4.3
Manufacturing Employment	19,084,000*	354,500	215,800	167,700	222,500	488,400
Percent Change Year Ago	-0.6	- 0.4	+ 2.3	- 4.0	- 0.3	+0.7
Non-Manufacturing Employment	81,284,000*	1,099,100	622,000	1,350,400	637,900	1,487,900
Percent Change Year Ago	+3.0	+ 1.8	+ 2.7	- 5.7	+ 1.3	+5.5
Average Weekly Earnings of Production Workers in Manufacturing	$399.75	$357.70	$317.49	$445.20	$302.19	$354.69
Percent Change Year Ago	+2.4	+ 1.1	+ 1.9	+ 0.7	+ 2.7	+3.6
Average Weekly Hours of Production Workers in Manufacturing	41.0	41.4	40.6	42.4	40.4	41.1
Percent Change Year Ago	+0.5	+ 0.5	+ 1.9	- 0.2	- 0.5	+0.2
Average Hourly Earnings of Production Workers in Manufacturing	$ 9.75	$ 8.64	$ 7.82	$ 10.50	$ 7.48	$ 8.63
Percent Change Year Ago	+1.9	+ 0.6	+ 2.6	+ 1.0	+ 3.2	+3.4

*Seasonally adjusted.

Source: Departments of Employment Security and Survey of Current Business.

For the twelve-month period ending September 1986 compared to the same 1985 period, the dollar value of total building permits in the U.S. fell 1.4 percent. Residential activity registered a solid gain of 15.7 percent, but non-residential activity experienced a substantial decline of 21.5 percent. For the Mid-South states, Alabama and Tennessee were the only states with an increase in the dollar value of total building activity, due to solid gains in their residential sectors. Alabama reported gains in both single- and multi-family units, while Tennessee had a decrease in total permits as a result of a 27.6 percent decline in multi-family units. Mississippi was the only other state to register an increase in multi-family unit permits but experienced a decline of 3.3 percent in the number of single-family unit permits. Louisiana was hardest hit with a decline of 21.0 percent in the number of single-family unit permits and a decline of 59.5 percent in multi-family permits. By comparison, the number of single-family unit permits increased 13.1 percent in the U.S., while permits issued for apartments declined 6.1 percent.

Both the U.S. and the Mid-South states had substantial declines in non-residential building activity. For the U.S., the largest decline was in the office sector, with industrial buildings and schools slightly below year-ago levels. However, major gains were reported for stores and hospitals. In the Mid-South, Louisiana experienced the largest decline in non-residential activity, off 53.7 percent from last year's pace. All major categories were affected. Alabama registered gains in offices and schools but experienced declines in industrial buildings and hospitals. Mississippi registered gains in office and store activity but recorded declines in hospitals and schools. Tennessee experienced increases in hosptials and stores and declines in offices and schools.

FINANCE

The commercial banking industry has been improving throughout 1986 and should have better profits in 1987. Bankers are cheering recent court victories that allow banks to be primary dealers in commercial paper, a huge market that is growing rapidly. Also, banks are now allowed to open branch offices for discount brokerage services for stocks even if the branch is in another state. However, a large number of troubled banks and savings and loans still remain, especially those with a large number of agricultural and real estate loans.

Business credit expansion is expected to be modest throughout 1987, and Treasury borrowing is not expected to exert any adverse pressures on the nation's financial markets. Business credit needs are anticipated to be moderate because of significant financial asset accumulation. Financial assets, as a percentage of short-term liabilities, are 2.5 percent above year-ago levels and only slightly below the historical norm. Consumers are expected to have less demand for credit, while state and local governments are expected to experience a slight upswing in their borrowing needs. The consensus forecast generally is for at least one more major decline in long-term interest rates and the possibility of the Federal Reserve cutting its discount rate once more during first quarter 1987. Overall, monetary policy is expected to remain accommodating but steady on a moderate course of expansion. One major uncertainty about monetary policy will come this summer when Paul Volcker is expected to step down as chairman of the Federal Reserve.

CONSTRUCTION[1] SEPTEMBER 1986	United States	Mid-South States				
		Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Total Building Percent Change Year Ago	- 1.4	+ 5.2	N.A.	-42.4	- 0.3	+11.9
Residential Building Percent Change Year Ago	+15.7	+26.8	N.A.	-22.6	+ 9.6	+18.3
Non-Residential Building[2] Percent Change Year Ago	-21.5	-12.2	N.A.	-53.7	-11.9	-14.6
Total Dwelling Unit Percent Change Year Ago	+ 4.4	+13.4	N.A.	-36.4	+ 8.6	- 2.3

[1] Twelve-month cumulative rate.

[2] Non-residential data exclude the cost of construction for publicly-owned buildings.

Source: The Federal Reserve Bank of Atlanta from data supplied by the Bureau of Census.

SAVINGS AND LOAN ACTIVITY	Alabama	Arkansas	Louisiana	Mississippi	Tennessee[1]
Mortgage Loans Made (millions) Percent Change Year Ago Percent Change Year-to-Date	CHANGE IN DATA REPORTING FORMAT. NO COMPARABLE DATA AVAILABLE FOR THIS REPORT.				

[1] Figures are for total loans made.

Source: Federal Home Loan Banks of Little Rock, Cincinnati, and Atlanta.

FINANCE SEPTEMBER 1986	United States	Mid-South States	Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Member Banks as of 9/3/86 Percent Change from Comparable Date 1985							
Total Deposits	+10.3	+ 8.2	+13.6	N.A.	+ 4.3	+ 6.2	+ 9.9
Demand Deposits	+11.9	+ 4.5	+ 7.9	N.A.	+ 0.2	+ 0.9	+ 8.7
Time Deposits	+ 4.2	+ 6.0	+14.0	N.A.	+ 1.3	+ 3.4	+ 7.3
Savings Deposits	+15.3	+15.0	+14.8	N.A.	+20.0	+11.9	+10.3

Source: The Federal Reserve Bank of St. Louis and the Federal Reserve Bank of Atlanta.

HOUSING (SHELBY COUNTY)

During third quarter 1986, starts and sales of new single-family homes continued their growth trends and increased from their third quarter 1985 level.

Total residential permits, however, decreased 53.4 percent from 2,744 during third quarter 1985 to 1,167 during first quarter 1986. This decrease includes a 4.4 percent increase in single-family permits; a 16.7 percent increase in duplex permits; and a large 77.1 percent decrease in apartment, condominium, and townhouse permits.

Total starts were also down from their third quarter 1985 level. New single-family starts increased 74.1 percent, duplex starts increased 20.0 percent, while apartment starts decreased by 136.1 percent.

Sales of new single-family homes were up 28.6 percent in third quarter 1986 over the same period in 1985, but condominiums registered an 80.7 percent decline from 161 sales closed in third quarter 1985 to only 33 sales closed in first quarter 1986.

The average sales price of a new single-family home was $107,929 for the third quarter of 1986 and averaged $103,496 for the first nine months of the year. This figure was up 10.8 percent from the 1985 nine-month average of $93,394. The sales price of condominiums also increased 33.9 percent during this period for a $75,865 average.

The number of real estate transfers increased 9.2 percent compared to third quarter 1985, and the dollar amount of the transfers was up 3.9 percent as well. Mortgage foreclosures were up 12.7 percent from 1,085 during January to October 1985 to 1,223 during January to October 1986.

Housing permits and starts for the incorporated portions of Shelby County (excluding Memphis and Germantown) totaled 234 for third quarter 1986. All the permits and starts were for single-family dwelling units. Bartlett had 60.2 percent of all the permits and starts, followed by Collierville with 36.8 percent.

The inventory of both completed and uncompleted homes in Shelby County is shown in Table 3. Uncompleted homes totaled 2,982 in the third quarter, while completed homes accounted for 1,030 units.

The average selling price of all units sold in Shelby County during third quarter 1986 increased 13.2 percent over the third quarter 1985 average price. Home sales in Shelby County were up 25.8 percent in third quarter 1986 to $422.5 million. During the period, 5,655 units were sold. This represents an 11.1 percent increase over the number of units sold during third quarter 1985.

THE TENNESSEE ECONOMY

The Tennessee economy has generally outperformed the national economy for the past twelve months. From October 1985 to October 1986, total non-agricultural employment grew 4.3 percent in Tennessee compared to a national gain of 2.3 percent. Manufacturing employment registered a slight gain, while non-manufacturing employment climbed 5.5 percent. There was a 0.7 percent gain in manufacturing employment for the year despite a small decline nationally; however, growth in non-manufacturing employment was 2.5 percentage points above the national increase. Growth in Tennessee's total personal income kept pace with the national increase, and sales tax collections had a robust year-to-date gain of 7.1 percent. Tennessee's unemployment rate remained the same as that a year ago, which generally indicates that job growth is keeping pace with growth in the labor force and the number of persons unemployed. The comparatively moderate 2.1 percent increase in the number of persons unemployed was substantially below the double-digit increases registered across the Mid-South states. Williamson County, which is south of Nashville, had the lowest unemployment rate (2.4 percent), while rural Pickett County, in northern Middle Tennessee, had the highest rate (22.7 percent).

Manufacturing employment across Tennessee was 3,300 jobs above year-ago levels, with durable goods production gaining 2,900 jobs and non-durable production adding 400 jobs. Solid gains were registered in lumber/wood products, furniture/fixtures, and transportation equipment. Electrical/electronic machinery registered the largest decline

Table 1

SHELBY COUNTY HOUSING INDICATORS, THIRD QUARTER, 1985-1986

Items	Third Quarter 1986	Third Quarter 1985	Year-to-Date 1986	Year-to-Date 1985	Percent Change Year-to-Date 1986 From Year-to-Date 1985
NEW RESIDENTIAL UNITS					
Total Permits Issued[1]	1,167	2,744	4,698	10,090	- 53.4
Single-Family	1,103	1,033	3,046	2,917	+ 4.4
Duplex	0	4	14	12	+ 16.7
Apartments[2]	64	1,707	1,638	7,161	- 77.1
Total Starts[1]	1,578	1,788	3,859	5,432	- 28.9
Single-Family	1,381	625	3,316	1,905	+ 74.1
Duplex	0	4	12	10	+ 20.0
Apartments[2]	197	1,159	531	3,517	- 136.1
Sales Closed					
Single-Family (New)	964	790	2,390	1,858	+ 28.6
Condominium	33	161	108	560	- 80.7
Average Sales Price					
Single-Family (New)	$107,929	$93,789	$103,496	$93,394	+ 10.8
Condominium	75,865	48,599	68,392	51,095	+ 33.9
REAL ESTATE TRANSFERS					
Number	6,821	6,109	17,046	15,609	+ 9.2
Amount (000)	$602,583	$477,122	$1,432,267	$1,377,760	- 3.9
NUMBER OF MORTGAGE FORECLOSURES	467	365	1,223	1,085	+ 12.7

[1] Expressed in number of dwelling units.

[2] Apartments include condominiums and townhouses.

Table 2

RESIDENTIAL BUILDING PERMITS AND STARTS, INCORPORATED AREAS (EXCLUDING MEMPHIS AND GERMANTOWN)[1] IN SHELBY COUNTY, THIRD QUARTER, 1986

Area	Permits Single-Family	Permits Duplex[2]	Permits Apartments[2]	Starts Single-Family	Starts Duplex[2]	Starts Apartments[2]
Bartlett	141	--	--	141	--	--
Arlington	2	--	--	2	--	--
Millington	1	--	--	1	--	--
Collierville	86	--	--	86	--	--
Lakeland	4	--	--	4	--	--
Total	234	--	--	234	--	--

[1] Due to local government consolidation between Memphis and Shelby County, residential permits and starts cannot be separately identified for the municipalities of Memphis and Germantown. The statistical data for these two municipalities are included in the data for unincorporated Shelby County.

[2] Number of dwelling units.

Table 3

INVENTORY OF UNSOLD SINGLE-FAMILY HOUSING UNDER CONSTRUCTION AND NEW HOUSING, SHELBY COUNTY, TENNESSEE, THIRD QUARTER 1986

	Summary of Uncompleted Houses						Summary of Completed Houses					
	Days Since First Inspection						Days Since Final Inspection					
Square Feet	§30	30-60	60-90	90-180	†180	Total	§30	30-60	60-90	90-180	†180	Total
Under 1,000	8	--	9	12	12	41	--	--	--	1	56	57
1,000 - 2,000	33	5	30	37	25	130	1	--	2	4	54	61
1,200 - 1,400	41	20	77	103	30	271	4	2	4	8	101	119
1,400 - 1,600	57	25	62	81	29	254	1	4	4	11	138	158
1,600 - 1,800	27	25	90	80	26	248	4	4	4	7	68	87
1,800 - 2,000	29	27	81	114	30	281	1	7	1	6	71	86
2,000 - 2,200	37	20	59	124	56	296	3	4	4	2	72	85
2,200 - 2,400	26	26	60	122	49	283	1	3	7	8	50	69
2,400 - 2,600	25	35	56	156	56	328	1	2	5	3	62	73
2,600 - 2,800	36	26	35	80	38	215	1	2	4	3	35	45
2,800 - 3,000	17	19	27	54	28	145	--	1	1	3	21	26
3,000 - 3,200	8	18	21	47	20	114	2	1	3	1	13	20
3,200 - 3,400	5	6	19	31	12	73	--	2	--	--	18	20
3,400 - 3,600	6	6	16	17	10	55	2	--	3	1	20	26
3,600 - 3,800	7	6	12	13	8	46	--	1	--	--	15	16
3,800 - 4,000	7	5	9	16	8	45	--	1	2	1	13	17
Over 4,000	12	18	44	67	16	157	1	--	5	5	54	65
Total	381	287	707	1,154	453	2,982	22	34	49	64	861	1,030

Source: K. William Chandler, Housing Inventory.

Table 4

SALES OF EXISTING AND NEW SINGLE-FAMILY RESIDENTIAL UNITS AND DUPLEXES, MEMPHIS AND SHELBY COUNTY, TENNESSEE, THIRD QUARTER, 1968-1986, AND ANNUAL SUMMARY, 1968-1985

	Total Dollar Volume All Price Ranges (Millions)		Number of Units Sold		Average Sale Prices All Units	
Year	3rd Quarter	Annual	3rd Quarter	Annual	3rd Quarter	Annual
1968	$ 56.2	$ 187.8	3,354	11,517	$16,740	$16,306
1969	58.9	204.8	3,269	11,851	18,035	17,281
1970	60.0	201.1	3,236	11,264	18,541	17,853
1971	82.3	273.1	3,933	13,727	20,925	19,895
1972	N/A	N/A	N/A	N/A	N/A	N/A
1973	118.0	396.3	4,374	15,278	27,090	25,939
1974	115.3	395.0	3,875	13,789	29,764	28,646
1975	127.5	401.6	3,955	12,942	32,245	31,031
1976	141.5	493.7	4,113	14,985	34,330	32,946
1977	195.4	537.5	5,220	14,700	37,433	36,565
1978	219.7	739.4	5,299	18,359	41,461	40,274
1979	239.2	819.3	5,156	18,371	46,393	44,597
1980	239.9	739.7	4,756	15,248	50,451	48,511
1981	171.2	605.1	3,033	11,455	56,445	52,824
1982	145.6	518.7	2,565	9,590	56,779	54,088
1983	245.2	791.1	4,063	13,684	60,361	57,810
1984	250.8	914.8	4,007	15,074	62,569	60,689
1985	335.8	1,091.7	5,089	17,123	65,988	63,488
1986	422.5	--	5,655	--	74,712	--

Source: K. William Chandler, Residential Sales Report.

in jobs, followed by job losses in the primary and fabricated metals industry. In terms of non-durable goods production, solid gains were recorded in the food/kindred products and printing/publishing sectors. Major losses were registered in the leather and apparel industries. Non-manufacturing employment increased by 77,800 jobs, with 69.0 percent of the gain attributable to the retail trade and service sectors. Government employment rose 9,200 jobs, with local governments accounting for 71.0 percent of the gain. Wholesale employment had a gain of 7,000 jobs, while employment in finance/insurance/real estate registered little change from year-ago levels. The major non-manufacturing job category loss was in hotel employment, off 1,000 jobs from last October.

In Tennessee's major metropolitan cities, total non-agricultural employment grew less than 1.0 percent in Memphis and Nashville, with Chattanooga, Knoxville, and the Tri-Cities area registering gains of 1.8, 1.4, and 1.1 percent, respectively. Manufacturing employment was lower in all the metropolitan areas, with Knoxville and Memphis registering the largest percentage decreases. The fabricated metals industry was hardest hit, with most of the losses recorded in Chattanooga, the Tri-Cities, and Memphis. Machinery production fell in Nashville and the Tri-Cities but increased by 300 jobs in Memphis. Textile mill employment in Chattanooga had the largest decline in the non-durables sector but recorded the largest gain (300 jobs) in the Tri-Cities area. Statewide, textile mill employment had a slight gain of 100 jobs. Memphis had the largest losses in food and kindred products employment, down 500 jobs, while Chattanooga had the largest gain in that category, adding 300 new jobs. Non-manufacturing employment had solid gains above 2.0 percent in Chattanooga, Knoxville, and the Tri-Cities area. Memphis and Nashville had only marginal increases from year-ago levels. Finally, a recent report by the Department of Labor indicated that between 1983 and 1985 average annual payrolls rose 5.0 percent in Memphis and 4.8 percent in Nashville. The other metropolitan areas were below the 4.5 percent Tennessee gain, with Knoxville, the Tri-Cities, and Chattanooga recording gains of 4.3, 4.1, and 3.8 percent, respectively.

News of recent economic developments includes an $8.0 million plant in Nashville for the Bendix chassis and brake division and the establishment of a USA TODAY printing plant for the region. Chattanooga announced a $1.3 million expansion of the Conagra Corporation and the addition of 220 jobs via UPS and Douglas Engines. Whittle Communication announced plans for a $100 million investment in a headquarters/hotel/health care complex in a one block area of downtown Knoxville. Homecrest Corporation will invest $6.0 million in the Knoxville area and add 250 jobs; Protective Apparel will expand and add 320 workers. In the Tri-Cities area, the Electrolux Corporation expects to hire 200 additional workers, and Irwin Forest Products intends to hire 120 workers. Additionally, Valley Brook Farms intends to expand its livestock research facility, adding 90 professional and technical jobs. In Memphis, St. Jude Research Hospital has begun its $72.0 million expansion which is expected to add 80 new scientists to the staff, and Brother Industries has almost completed its first typewriter plant in the U.S.

The combination of mild temperatures and fewer heavy rains contributed to a generally thorough harvesting season for Tennessee farmers. The negative effects of a wet spring and a dry summer were offset by a mild fall. While favorable weather helped the harvest, crop production was substantially down from year-ago levels in all categories. Milk production declined slightly, off 1.7 percent, with the number of milk cows on farms declining 3.3 percent from last November. However, the amount of milk per cow increased 1.2 percent to an average of 850 pounds. Hog and pig production was down sharply, while the number of cattle slaughtered jumped 20.0 percent. The Tennessee Farm Price Index recorded a slight gain of 0.8 percent, primarily due to a 4.4 percent gain in livestock prices. The gain in livestock prices was attributable to a 27.3 percent increase in hog prices which offset a 2.3 percent decline in cattle prices. The overall crop index decreased 4.1 percent, with the major price decline in sorghum, off 29.6 percent from year-ago levels. Wheat and cotton also registered double-digit declines, down 11.7 and 11.4 percent, respectively. Broiler prices climbed 10.3 percent, while egg prices remained virtually unchanged. Tobacco prices were marginally lower.

TENNESSEE CORPORATE NEWS

Comdata Network (Nashville). Comdata has agreed to acquire Dallas-based U.S. Funds Express. U.S. Funds is a privately-held company with money transfer services, money orders, and credit services for over-the-road trucking companies.

M.S. Carriers (Memphis). Since going public last April, the market value of the company's stock has increased 57.4 percent. The company also reports that for the first months of 1986 compared to the same 1985 period, operating revenues increased 39.0 percent and net income per share jumped 56.5 percent.

Endata (Nashville). Endata recently announced a multi-year service contract as provider of computer output microfilm (COM) for BellSouth's nine-state service area. Currently, COM services are available primarily in Tennessee, Mississippi, Alabama, and Louisiana. The contract will expand coverage to Georgia, Florida, and the Carolinas.

First Tennessee (Memphis). The Memphis bank announced plans to acquire Lebanon Bank of Tennessee. The bank is the largest financial institution in Wilson County, which is adjacent to and east of Nashville. The acquisition is valued at approximately $31.0 million. The Lebanon Bank currently has $124.8 million in assets.

Administration (NCUA) listed 18 different size categories. A minimum difference of four in the asset size category was used to differentiate the "large" from the "small" credit unions. (Refer to Table 1 for a precise description of each variable and the hypothesized relationships.)

Delinquency Rates

Even though the cooperative nature and the group pressure in small credit unions are likely to act as incentives on individuals to repay their loans, there appear to be offsetting reasons to suggest that small credit unions experience higher rates of loan delinquency as compared to their larger counterparts. For example, the 1981-1982 recession had a more adverse impact on small credit unions. Also, small credit unions were more poorly capitalized. Two different measures of delinquencies were constructed from the regulatory reports of credit unions. The first measured the "Number of Delinquent Loans Relative to the Number of Total Loans," while the second measured the "Volume of Delinquent Loans Relative to the Volume of Total Loans." Both of these ratios are hypothesized to be larger for small credit unions as compared to their larger counterparts.

Average Savings Per Member

Since most small credit unions are dependent on payroll deductions and do not offer long-term savings plans that accumulate large amounts over time (e.g., IRAs), small credit unions were hypothesized to have lower average savings per member than large credit unions. Among the four different measures of average savings used, two were (1) Average Size of Deposit Accounts and (2) Average Savings Per Member. The last two ratios were utilized to capture the number of small savers who make minimal deposits to gain loan rights, i.e., (3) Total Number of Savings Accounts with $2,000 or Less Relative to Total Number of Savings Accounts and (4) Total Volume of Savings Accounts with $2,000 or Less Relative to Total Volume of Savings Accounts. The first two of these ratios were expected to be smaller for small credit unions, while the last two were hypothesized to be larger for them.

Loan to Savings Ratio

Three variables were used to describe the loan to savings ratios. All three were hypothesized to be smaller for small credit unions than for large credit unions. The rationale for this assumption is that a smaller asset base cannot support both the necessary liquidity and a large loan portfolio. The three variables used to describe the loan to savings relationship were (1) Average Size Loan, (2) Total Number of Loans to Total Number of Deposit Accounts, and (3) Total Loans Outstanding to Total Deposits.

Liquidity

Small credit unions were hypothesized to have a greater need for maintaining liquidity compared to large credit

Table 1

MEASURES OF OCCUPATIONAL CREDIT UNION BEHAVIOR AND HYPOTHESIZED RELATIONSHIPS BETWEEN LARGE AND SMALL CREDIT UNIONS

Variable Symbol	Definition	Hypothesized Relationship*
	I. Delinquency Rate	
NDL/NTL	1. Number of Delinquent Loans/Number of Total Loans	S < L
DL/TL	2. Volume of Delinquent Loans/Volume of Total Loans	S < L
	II. Average Savings Per Member	
ADA	1. Average Size of Deposit Accounts	S < L
ASM	2. Average Savings Per Member	S < L
NSSA	3. Total No. of Savings Accts. with $2,000 or Less/Total No. of Savings Accts.	S > L
SSA	4. Total Volume of Savings Accts. with $2,000 or Less/Total No. of Savings Accts.	S > L
	III. Loan to Savings Ratio	
TL/NTL	1. Average Size Loan	S < L
NL/ND	2. Total Number of Loans/Total Number of Deposit Accounts	S < L
TL/TD	3. Total Loans Outstanding/Total Deposits	S < L
	IV. Liquidity	
C/TA	1. Cash/Total Assets	S > L
C+I/TA	2. Cash and Investment Securities/Total Assets	S > L
	V. Provisions for Loan Losses	
CAP/TL	1. Capital/Total Loans Outstanding	S > L
RES/TL	2. Total Reserves/Total Loans Outstanding	S > L
UE/TA	3. Undivided Earnings/Total Assets	S > L
SPREAD	4. Spread = [Interest on Loans/Total Loans] - [Deposit Interest/Total Deposits]	S > L

*Assume that "S" is the behavior characteristic for the occupational credit union group considered "small," while "L" represents the comparable characteristic for the occupational credit union group considered "large."

unions. This liquidity requirement results from having a large percentage of more volatile small deposit accounts. Two ratios were used to measure liquidity: (1) Cash to Total Assets and (2) Cash Plus Investment Securities to Total Assets.

Provisions for Loan Losses

Finally, in anticipation of higher delinquency rates, small credit unions were hypothesized to have a greater need for provisions for loan losses. Four different measures of provisions for loan losses were constructed. These were (1) the ratio of "Capital to Total Loans Outstanding," (2) the "Total Reserves to Total Loans Outstanding" ratio, (3) the ratio of "Undivided Earnings to Total Assets," and (4) the "Spread," i.e., the difference between the return on loans and the cost of deposits.

In summary, small credit unions should experience (a) higher loan delinquencies, (b) lower average savings per member, (c) lower loan to savings rates, (d) higher liquidity needs, and (e) a greater need for loan loss provisions compared to their larger counterparts.

Research Methodology

This research was conducted in two phases. First, one paired sample of credit unions was drawn for each of four years (i.e., 1979 through 1982) from the occupational category to reflect maximum credit union size differences, holding constant their (a) occupational affiliation, (b) location, and (c) charter. Then a paired t-test analysis was performed on a set of measures of behavior derived from the hypothesized relationships. Second, each size group was compared by computing Hotelling's T^2 to determine if there were significant differences among the different sized credit unions, with all of the behavioral variables considered simultaneously.

Data and Sample

The measures of credit union behavior employed in the statistical analyses were developed primarily from the data base of regulatory reports filed with the NCUA which contained information on nearly 11,000 federally-chartered credit unions and 5,000 federally-insured, state-chartered credit unions. Cross-sectional data consisting of 15 variables for each of the four years, i.e., 1979-1982, were utilized as representatives of credit union behavior.

The samples were chosen according to a matched pair scheme so that important extraneous influences would be held constant. In order to ascertain if size differences had an effect on credit union behavior, the matched pairs were selected on the basis of maximum size differences. As of 1982, the NCUA listed 18 different size categories for the total population of nearly 16,000 federally-insured credit unions. The criterion for pairing was a minimum difference of four in the asset size group between the two credit unions compared, holding constant their (a) occupational category, (b) location, and (c) type of charter. Pairing by occupational credit union categories was done on the basis of the degree of operational stability of an institution, i.e., (a) stable and (b) cyclical. The occupational category is based on the principal activity of the employer/sponsor and assumes some type of employment relationship in the membership. The following types of credit unions were considered in the stable category: Colleges and Universities (NCUA #782); Elementary and Secondary Schools (#781); Federal Government - Civilian (#80-81); Federal Government - Military (#82); and City Government (#845).

The cyclical or unstable category of credit unions was comprised of the following types: Textile Mill Products (#22); Apparel and Other Finished Products (#23); Lumber and Wood Products (#24); Furniture and Fixtures (#25); Primary Metals Industries (#33); Fabricated Structural Metal Products (#344); Machinery, Except Electrical (#35); Transportation Equipment (#37); and General Merchandise (#542). For a more detailed discussion of the occupational-type categories, refer to [8].

In order to avoid differences caused by geographic factors, credit unions in each category were also paired by location. Matching of credit unions by locations was done by using the four-digit Standard Metropolitan Statistical Area (SMSA) code. Finally, credit unions were also paired by type of charter, i.e., federally-chartered credit unions were matched only with other federally-chartered credit unions and not with state-chartered institutions due to different regulatory constraints. Using these sample selection criteria, the following sample sizes were arrived at: 1979, 1,083 pairs; 1980, 1,029 pairs; 1981, 995 pairs; and 1982, 942 pairs.

Matched Pair Analysis of Credit Union Behavior Differences

One of the most difficult problems associated with an analysis of behavior differences related to credit unions was controlling extraneous factors which could potentially distort the findings. One method available to control extraneous variation was to match each sample unit in a particular category with a similar credit union in another category. Then the mean difference between a behavior characteristic of the matched sample units was tested for statistical significance. (Refer to Mendenhall and Reinmuth [6, pp. 293-297] for an explanation of the comparison of sample means with paired observations. Also, see the appendix for details of the matched pairs test and the Hotelling's T^2 analysis.)

Results

Multivariate Analysis of Credit Union Behavior Differences

The Hotelling's T^2 analysis produced F ratios with probability values of .0000 in each of the four years examined, i.e., 1979-1982. The implications of these findings are that when all of the aforementioned behavior measures were considered simultaneously, small credit unions display behavior characteristics which are significantly different from those shown by their larger counterparts, holding constant (a) their occupational category, (b) location, and (c) charter. While it is important to know that credit union size differences consistently resulted in different overall behavior characteristics, the exact nature of these behavior differences is equally important. In this study, the nature of behavior differences was explored with the matched pair analysis.

Matched Pair Analysis of Behavior Differences

As discussed below, the findings of the matched pair analysis support most of the hypothesized relationships. The findings suggest that compared to large credit unions, small ones experience higher delinquency rates, have smaller average savings per member, have smaller loan-to-savings ratios, maintain higher levels of liquidity, and operate with larger provisions for loan losses. (For a summary of the findings, refer to Table 2.)

Delinquency Rates. As expected, the findings clearly indicate that small credit unions did experience higher delinquency rates compared to their larger counterparts. The recession of 1981-82 is partly to blame for the sharp increase in delinquency rates for small credit unions since the smaller institutions were more adversely affected. Other reasons might be that small credit unions were poorly capitalized, had limited powers, and had to incur expensive repetitive processing costs. In terms of the Number of Delinquent Loans/Number of Total Loans, the results for each of the four years examined were consistent with each other, while the ratio of the Volume of Delinquent Loans/Volume of Total Loans was statistically significant for three of the four years studied.

Average Savings Per Member. For each of the four years examined, the average savings per member were larger for the larger credit unions, while the ratio of the Total Number of Savings Accounts with $2,000 or Less/Total Number of Savings Accounts and the ratio of Total Volume of Savings Accounts with $2,000 or Less/Total Volume of Savings Accounts turned out to be larger for the smaller credit unions.

Loan to Savings Ratio. With respect to the "Average Size Loan," the ratio of "Total Number of Loans/Total Number of Deposit Accounts," and the "Total Loans Outstanding/Total Deposits" ratio, the larger credit unions produced higher values.

Liquidity. The paired difference test also provided evidence that, on balance, small credit unions maintain larger Cash/Total Assets and Cash plus Investment Securities/Total Assets proportions. These results suggest that in terms of interest foregone, smaller credit unions

Table 2

RESULTS OF THE MATCHED PAIR ANALYSIS OF OCCUPATIONAL CREDIT UNIONS
PAIRED BY MAXIMUM SIZE DIFFERENCE

Hotelling's T	1979 P = .0000*		1980 P = .0000*		1981 P = .0000*		1982 P = .0000*	
Variable Symbol	Mean Difference Small-Large	Significance Level*	Mean Difference Small-Large	Significance Level*	Mean Difference Small-Large	Significance Level*	Mean Difference Small-Large	Significance Level*
I Delinquency Rate								
NDL/NTL	.0574	.0000	.0519	.0000	.0554	.0000	.0533	.0000
DL/TL	.0570	.0002	-.0036	.8497	.0260	.0000	.0268	.0000
II Average Savings Per Member								
ADA	-1047.1547	.0000	-2424.5724	.0038	-1987.4556	.0008	-939.9551	.0000
ASM	-1067.4314	.0000	-2159.6734	.0054	-1879.5624	.0016	-748.8953	.0000
NSSA	-.0053	.6277	.1031	.0000	.0971	.0000	.0895	.0000
SSA	.2525	.0000	.3329	.0000	.2921	.0000	.2606	.0000
III Loan to Savings Ratio								
TL/NTL	-1622.0200	.0000	-1926.4714	.0009	-1787.1629	.0000	-1524.7169	.0000
NL/ND	-.1222	.0000	-.0628	.0000	-.0178	.5268	-.0118	.1802
TL/TD	-.1494	.0000	-.0287	.0109	-.0124	.2980	.0496	.0000
IV Liquidity								
C/TA	.0666	.0000	.0609	.0000	.0547	.0000	.0503	.0000
C+I/TA	.0840	.0000	.0444	.0000	.0462	.0000	-.0052	.5580
V Provisions for Loan Losses								
CAP/TL	.0267	.0000	.0451	.0001	.0473	.0000	.0568	.0000
RES/TL	.0062	.0773	.0112	.0518	.0240	.0825	.0131	.0017
UE/TA	.0067	.0002	.0069	.0004	.0087	.0000	.0137	.0000
SPREAD	.0086	.0000	.0126	.0000	.0155	.0000	.0148	.0000
Sample Size	1,083 pairs		1,029 pairs		995 pairs		942 pairs	

*Indicates the probability of the observed difference and associated t-value occurring due to sampling.

may operate at a competitive disadvantage relative to larger institutions.

Provisions for Loan Losses. Finally, the differences between small and larger credit unions were statistically significant for all four variables examined under "Provisions for Loan Losses." Small credit unions maintained larger proportions for the following ratios: Capital/Total Loans Outstanding; Total Reserves/Total Loans Outstanding; Undivided Earnings/Total Assets; and the "Spread" between lending and borrowing rates.

Summary and Conclusions

In comparison to their larger counterparts, small credit unions were hypothesized to (a) experience lower loan delinquency rates, (b) operate with lower average savings per member, (c) work with higher loan to savings ratios, (d) maintain a higher degree of liquidity, and (e) have higher provisions for loan losses.

The empirical analysis of several thousand credit unions for 1979 to 1982 provided substantial support for all the hypothesized relationships. Furthermore, the multivariate test results clearly indicated that small credit unions display different behavior patterns compared to their larger counterparts. These findings are quite consistent by year and type of behavior.

The implications of these results to shareholders, managers, and regulators are the following:

(1) Size is a major determining factor for the behavior patterns of credit unions. Size, therefore, can be analyzed as a beneficial or detrimental impetus to a given situation. The most obvious example of this analysis would be the effects of a merger of two small credit unions. Simply stated, the relative size of a credit union is a major determinant of its overall behavior.

(2) Higher relative reserve and liquidity needs of smaller credit unions suggest that they may operate at a competitive disadvantage relative to larger ones. Efficient cash management, a long neglected aspect of financial management, has to receive increased attention. High and volatile interest rates have increased the opportunity cost of holding idle cash. A more centralized cash management system—aided by an electronic communication and transfer system—could result in more productive uses of excess cash balances that are available at small credit unions.

(3) Loan loss rates generally decline as a credit union increases in size.

(4) A regulatory system—e.g., one with risk based capital and reserve requirements—that encourages credit unions to behave prudently could be derived, and regulators could intervene sooner when an institution appears headed for trouble.

Appendix

The null hypothesis for the matched pairs test is $\mu_{\bar{d}} = 0$ where $\mu_{\bar{d}}$ is the population mean difference in the performance measure between paired observations. The test statistic is distributed as student's t and may be expressed as follows:

$$t = \bar{d} / s_{\bar{d}} \qquad (1)$$

where

$d = \sum_{j=1}^{n} (x_{1j} - x_{2j})/n$ = sample mean difference

x_{1j} = the measure of behavior for the jth credit union in the first category, e.g., small credit unions, holding constant occupational category, location, and charter

x_{2j} = the measure of behavior for the jth credit union in the second category, e.g., large credit unions, holding constant occupational category, location, and charter

n = total number of pairs

$$s_{\bar{d}} = \sqrt{\sum_{j=1}^{n} (x_{1j} - x_{2j})^2 - [\sum_{j=1}^{n} (x_{1j} - x_{2j})]^2 / n \,/\, n(n-1)} \qquad (2)$$

The occupational credit unions were paired on the basis of size, i.e., each pair consisted of a large credit union and a small one, with a minimum difference of four in the asset size category between the paired institutions, and they were also matched according to (a) occupational grouping, (b) geographical location, and (c) charter.

Multivariate Analysis of Credit Union Behavior Differences

Because the matched pair tests do not consider all the different measures of behavior simultaneously, a multivariate analysis of the different measures of behavior was conducted with a Hotelling's T^2 analysis.

Hotelling's T^2 is simply the multivariate analogue of the univariate F test for the equality of sample means [7, pp. 117-130]. In the multivariate case, the means of several variables are tested simultaneously for equality. The test statistic was computed as follows:

$$T^2 = (\bar{x}_1 - \bar{x}_2)' s^{-1} (\bar{x}_1 - \bar{x}_2) / (1/N_1 + 1/N_2) \qquad (3)$$

where

$\bar{x}_1$ and $\bar{x}_2$ = column vectors of the measure of behavior means for two groups, e.g., the "small" group and the "large" group

s = the pooled within-groups covariance matrix for groups 1 and 2

$(\bar{x}_1 - x_2)$ = the transpose of the $(\bar{x}_1 - x_2)$ matrix

N_1 and N_2 = the number of sample units in groups 1 and 2

T^2 may be transformed in an F statistic by

$$F = T^2 (N_1 + N_2 - V - 1) / V(N_1 + N_2 - 2) \qquad (4)$$

where

V = the number of measures of behavior [3, p. 94].

The Hotelling's T^2 approach indicates any overall behavioral differences among credit unions based on all the measures of behavior examined in this study.

(continued on page 28)

THE IMPACT OF DISCRETIONARY NON-RECURRING EVENTS ON NET INCOME

*Hartwell C. Herring, III and Fred A. Jacobs**

The effective date of **APB Opinion No. 30** (APB 30) was September 30, 1973 [1]. It was anticipated that this pronouncement would substantially reduce the number of extraordinary items being reported in published financial statements. Consistent with that expectation, Jacobs and Herring [17] found only 9 extraordinary items in a sample of 81 Fortune 500 firms in the first full year after the effective date of the opinion. A similar sample selected at random for the five years preceding the opinion showed 27 extraordinary items in a sample of 98 firms. Eisenman et al. [11, p. 26] found only 10 extraordinary items in a sample of 288 Fortune 1000 firms in 1975 and concluded that ". . . APB No. 30 has narrowed the definition of an extraordinary item to almost eliminate its use." In another study of 150 companies, Benjamin et al. [4, pp. 101-102] concluded that both the number of and number of kinds of extraordinary items were markedly less in the 1974-76 period than in the 1970-73 period.

This article extends the work of these earlier studies by addressing the question of consistency in applying the criteria for extraordinary items over a longer time period (1973-84) than previously studied. The purposes of this study were to (1) determine whether there was variation in the number and type of extraordinary items (EI) and cumulative effects of accounting changes (CE) during the years studied and (2) to determine whether this variation resulted from transactions which were engineered in order to achieve some predetermined effect on net income.

The second objective of the article mentioned above is based on the literature that addresses the question of whether managements attempt to manage or manipulate reported income numbers. These studies involve the "big bath" phenomenon and "income smoothing" behavior. The "bath" is affected by a write-down or write-off of selected balance sheet accounts and the generation of provisions for future losses; these events are thought to occur in a period when reported income is expected to be significantly below desired levels [6, 5, 21, 15, 18, 20]. The "income smoothing hypothesis" suggests that managements attempt to smooth reported income and/or the growth rate in reported income numbers by using the latitude or discretion that exists within the sphere of generally accepted accounting principles [14]. The results of empirical studies of the income smoothing hypothesis are mixed. Some research provides little support for the income smoothing hypothesis [13, 10, 7, 22], while other studies provide support for it [8, 9, 3, 16]. A study by Barnea, Ronen, and Sadan provides support for the classificatory income smoothing hypothesis with respect to extraordinary items [2].

This enormous quantity of existing research that attempts to provide evidence concerning the use of managements' discretion in the generation of reported income numbers indicates a non-transitory interest in all aspects of the topic. It is, therefore, appropriate to evaluate the long-term effect of extraordinary item disclosures as related to planned effects.

Study Companies and Analysis

Standard and Poor's 400 (S&P 400) were chosen for study due to some of the homogeneous characteristics of the firms and because they may be representative of a larger grouping of companies. Initially, all S&P 400 firms reporting either an EI or a CE (EI/CE) for the years 1973 through 1984 were identified from the COMPUSTAT industrial tape. Since COMPUSTAT includes both extraordinary items and cumulative effects under a single heading, it was not possible to separate these items until the financial statements were obtained for the second phase of this study.

The number of S&P 400 companies reporting EIs and CEs is shown in Figure 1. The largest number of firms reporting EI/CE items was 54 in 1973, the transition year for APB 30. From 1974 through 1980, the number of firms reporting these events declined dramatically to a low of 25 in 1977. However, in 1981 there was a noticeable increase in firms reporting EI/CE items, and this increasing trend continued into 1982 when the number of firms reporting EI/CEs reached a new high of 48 for the post APB 30 period. The increase in firms reporting these kinds of transactions is also evident in 1983 and 1984.

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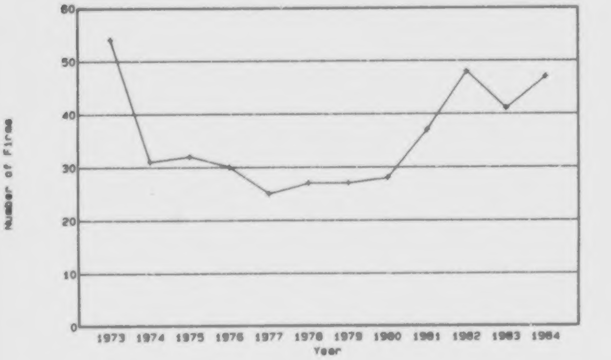
Figure 1

The Number of Firms Reporting EI or CE

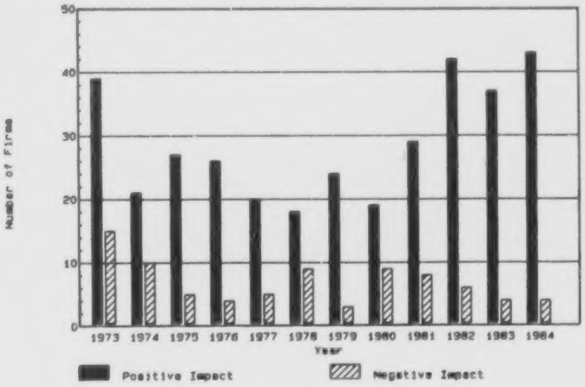


The data in Figure 1 show only the number of firms reporting EI/CE events. Each firm may have disclosed several individual items, each with a positive or negative effect on reported earnings. In order to determine whether this net effect could be predicted, the COMPUSTAT data was retrieved and identified as either a net positive effect or net negative effect on income. Figure 2 discloses, in bar chart format, the number of firms reporting a net increase or decrease in income due to EI/CE amounts in each of the study years. Using the Walsh [4, pp. 83-87] test and an alpha level of .051, it can be concluded that the EI/CE category is likely to have a positive effect on reported earnings within the study group of firms.[1]

Table 1 compares the EIs and CEs by year and dollar amount. It can be noted that the dollar value of the positive items exceeds the dollar value of the negative items for ten of the twelve years shown, every year except 1979 and 1983. This trend provides further evidence that there is systematic bias in the data and that the sign of an EI/CE item is not a random event. In searching for an explanation of this bias, it may be that the positive extraordinary items may tend to be composed of discretionary events and the negative disclosures may tend to be composed of non-discretionary events. The tendency of management to engineer discretionary transactions in order to positively affect income numbers is widely discussed and investigated. If it can be expected that discretionary transactions are more often positive than negative and that non-discretionary transactions tend to be neutral in terms of their positive/negative trend, an examination of the specific types of events that comprise the population should provide additional evidence regarding this issue.

Figure 2

Effect of EI and CE on Reported Income



In order to identify the specific types of transactions that were included as a total in the reported EI/CE category of S&P 400 firms, a sampling was undertaken. Twenty-five firms were selected randomly from those firms included in Figure 1 (drawn from COMPUSTAT) for each year studied, 1973-1984. This sample size ranged from 46.0 percent (1973) to 100.0 percent (1977) of the total number of S&P 400 firms reporting EI/CE events. Financial statements were examined for each of the sample firms, and the footnotes were used to categorize the transactions included in the EI/CE disclosure.

The results of the above analysis are depicted in Table 2. Each of the reported items was categorized as resulting from a net operating loss carryforward (NOL), a cumulative effect of a change in accounting principles (CE), a sale or abandonment of assets (S/A), an early extinguishment of debt (ED), litigation (LT), a catastrophic event (CA), or other (OT). For example, in 1976 the 25 sample firms reported 30 items reported as extraordinary (NOL=12,

Table 1

COMPANIES SHOWING POSITIVE AND NEGATIVE EXTRAORDINARY ITEMS AND CUMULATIVE EFFECTS BY YEAR AND AMOUNT

	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974	1973
Positive Items												
Number of Firms	43	37	42	29	19	24	18	20	26	27	21	39
Dollar Amount (Millions)	$1,868	$1,100	$1,281	$2,295	$1,275	$431	$279	$156	$303	$207	$180	$336
Negative Items												
Number of Firms	4	4	6	8	9	3	9	5	4	5	10	15
Dollar Amount (Millions)	$106	$5,544	$271	$583	$230	$468	$206	$12	$22	$16	$98	$180

Table 2

EXTRAORDINARY ITEMS AND CUMULATIVE EFFECTS

	NOL[1]		CE[2]		S/A[3]		ED[4]		LT[5]		CA[6]		OT[7]	
Year	FQ	RK	FQ	RK	FQ	RK	FQ	RK	FQ	RK	FQ	RK	FQ	RK
1973	9	2	1	3	14	2	0	4	1	3	0	4	1	5
1974	14	1	4	3	6	2	1	4	1	4	1	4	0	5
1975	12	1	6	2	1	4	5	3	1	4	0	5	0	5
1976	12	1	2	4	6	2	3	3	3	3	1	5	3	3
1977	13	1	3	3	4	2	3	5	4	2	1	4	1	4
1978	11	1	1	5	4	3	2	4	9	2	0	6	0	6
1979	9	1	6	2	2	4	2	4	5	3	1	5	0	6
1980	9	1	4	3	5	2	0	4	4	3	4	3	0	4
1981	5	3	7	2	8	1	2	4	2	4	2	4	0	5
1982	3	3	9	2	2	4	12	1	2	4	2	4	0	5
1983	7	2	1	4	2	3	17	1	0	5	0	5	0	5
1984	15	1	1	5	2	3	8	2	0	6	0	6	2	5
Total	119	18	45	38	56	31	55	37	32	43	12	53	7	54

[1] This category reflects the effect of net operating loss carryforwards which have the effect of reducing taxes currently.

[2] Cumulative effects of changes in accounting principles.

[3] Sale or abandonment of plant, equipment, and investments.

[4] Gains and losses from the early extinguishment of debt are accorded extraordinary item treatment because they are specified exceptions to the general rule of "unusual and infrequent" [12].

[5] Litigation settlements, pro~~visions~~ for settlements, and reversals for provisions for settlements.

[6] Catastrophic events usually meet the definition of "unusual and infrequent" which is the conceptual basis of the extraordinary income statement category.

[7] Other—these were items that could not be categorized under the other six headings from the information provided in the financial statements.

CE=2, S/A=6, ED=3, LT=3, CA=1, OT=3). Each category in Table 2 is shown with the frequency (FQ) of occurrence of that category and, additionally, how that category ranked (RK) for each year. For example, in 1978 litigation (LT) was ranked second with 9 events out of a total of 27. It is noteworthy that in eight of the twelve years, net operating loss carryforwards (NOL) was ranked first, while catastrophic events (CA) was ranked last (if we exclude the other (OT) category) in eleven of the twelve years. NOLs are exceptions to the conceptual criteria for extraordinary items, while catastrophic events generally meet those criteria.

Additional insight is gained by expressing the frequencies of Table 2 as proportions, where the proportion represents the relationship of the frequency of each category to the total number of items reported for a given year. These proportions are shown in Table 3, with the highest year for each category indicated with an asterisk. In 1984, 53.6 percent of the reported extraordinary items were NOLs, the highest proportion for that category for the twelve-year period; however, in 1982 NOLs accounted for only 10.0 percent of the events, the low for the period. Cumulative effects hit its peak in 1982 (30.0 percent), while extinguishments of debt did so in 1983 (63.0 percent). Sale or abandonments for the period continued to be reported as extraordinary despite the fact that APB 30 specifically states that such items are not to be classified as extraordinary [1].

The data in Table 3 allow the inference that the 1982-84 data may diverge from the trend indicated in the earlier years of the study. For instance, the 1982 resurgence of the stock market provided an opportunity for some companies to issue new equity. Of the 42 positive EIs for 1982 in Table 1, 24 were debt extinguishment items. Of these 24 items, 19 were transactions which involved equity for debt exchanges. These companies were able to take advantage of the conditions in the securities markets to retire debt under favorable conditions. Because much of the debt was issued at rates below current market rates, it was retired at a gain. Similar economic conditions continued in 1983-84.

Table 3

PROPORTIONS OF EXTRAORDINARY ITEMS AND CUMULATIVE EFFECTS BY TYPE AND YEAR

(In Percent)

Year	NOL	CE	S/A	ED	LT	CA	OT
1973	34.7	3.8	53.9*	0	3.8	0	3.8
1974	51.9	14.8	22.2	3.7	3.7	3.7	0
1975	48.0	24.0	4.0	20.0	4.0	0	0
1976	40.0	6.7	20.0	10.0	10.0	3.3	10.0*
1977	44.8	10.3	13.8	10.3	13.8	3.5	3.5
1978	40.8	3.7	14.8	7.4	33.3*	0	0
1979	36.0	24.0	8.0	8.0	20.0	4.0	0
1980	34.6	15.4	19.2	.0	15.4	15.4*	0
1981	19.2	26.9	30.8	7.7	7.7	7.7	0
1982	10.0	30.0*	6.7	40.0	6.7	6.6	0
1983	25.9	3.7	7.4	63.0*	0	0	0
1984	53.6*	3.6	7.1	28.6	0	0	7.1

*Highest proportion for this item over the twelve-year period.

To further evaluate the uniqueness of the 1982-84 period, Table 4 was devised. In Table 4 the proportions for each category for 1975-81 (Table 3) were summed and an arithmetic mean calculated. This mean of proportions was then used to predict the expected value of each category frequency for 1982, 1983, and 1984. The resulting predictions for 1982-84 indicate a dramatic change in the frequency of reported debt extinguishment transactions compared with previous years. When the "mean proportions" for 1975-81 are used to estimate the actual values for the NOL, CE, S/A, ED, and LT categories for 1982-84, inclusive, the differences between these estimates and the actual values are significantly different when the chi-square test for independent samples is employed with an alpha level of .05. Table 4 data, therefore, strongly suggest that 1982-84 reported EI/CE events were made up of a different mix of economic transactions than earlier years (1975-81).

Table 4

ACTUAL AND PREDICTED VALUES OF EXTRAORDINARY ITEMS AND CUMULATIVE EFFECTS BY TYPE AND YEAR

	NOL	CE	S/A	ED	LT	CA	OT
Mean Proportions 1975-1981	37.6	15.9	15.8	9.1	14.9	4.8	1.9'
1982:							
Expected Value (N x P)*	11	5	5	3	4	1	1
Actual Value (Table 2)	3	9	2	12	2	2	0
1983:							
Expected Value (N x P)	10	4	4	3**	4	1	1
Actual Value (Table 2)	7	1	2	17	0	0	0
1984:							
Expected Value (N x P)	11	4	4	3	4	1	1
Actual Value (Table 2)	15	1	2	8	0	0	2
1982-1984 (Inclusive)***							
Expected Value	32	14	13	8	13	***	***
Actual Value	25	11	6	37	2	***	***

*N = Number of events per year.

**N x P = 3, where N = 27 and P = 9.1 percent. All calculations are rounded.

***Differences for these categories are significant at the .05 level using the chi-square test for independent samples. CA and OT categories were excluded for the test because the cell sizes were too small.

The Issue of Discretionary Transactions

It was previously noted that EI/CE events tend to have a positive effect on net income more often than a negative effect. It was suggested that this tendency may be the result of discretionary action on the part of management to engineer transactions of a EI/CE nature in order to increase reported net income. In order to provide some evidence regarding this hypothesis, Table 5 was constructed. This table divides the EI/CE events from Table 2 into discretionary and non-discretionary categories. The discretionary category includes cumulative effects (CE), sale and abandonments (S/A), and debt extinguishments (ED). The non-discretionary category includes tax loss carryforwards (NOL), litigation (LT), catastrophic events (CA), and other (OT). The discretionary category is further divided into positive and negative groups according to their income effect. The non-discretionary category is divided into positive NOLs and positive and negative groups for the other items. The data show that for the discretionary group there is a marked tendency for the items to have a positive effect on net income. The positive discretionary items are greater than the negative discretionary items for eleven of the twelve years of the study. Examination of the non-discretionary category provides additional evidence to support the assertion that discretionary EI/CE events tend to have a positive effect on net income. When the NOL category is excluded from the non-discretionary data, the number of positive non-discretionary items exceeded the negative ones in only four of the twelve years studied, 1974, 1976, 1979, and 1984. Table 6 compares the discretionary items with the non-discretionary items, excluding NOLs, by classifying

Table 5

EXTRAORDINARY ITEMS AND CUMULATIVE EFFECTS CLASSIFIED AS DISCRETIONARY: POSITIVE AND NEGATIVE AND NON-DISCRETIONARY: POSITIVE AND NEGATIVE BY YEAR

	Discretionary		Non-Discretionary		
Year	Positive	Negative	Positive NOLs	Positive Other	Negative
1973	10	4	9	1	1
1974	4	7	14	2	0
1975	10	2	12	0	1
1976	9	2	12	4	3
1977	7	3	13	2	4
1978	6	1	11	1	8
1979	9	1	9	4	2
1980	7	2	9	2	6
1981	15	2	5	0	4
1982	22	1	3	1	3
1983	21	2	7	0	0
1984	10	1	15	2	0
Total	130	28	119	19	32

Table 6

COMPARISON OF TYPE OF EVENT TO THE EFFECT ON INCOME

	TYPE OF EVENT	
EFFECT ON INCOME	DISCRETIONARY	NON-DISCRETIONARY
POSITIVE	130	19
NEGATIVE	28	32

the two groups into positive or negative effects. A comparison of the two groups by income effect using the chi-square test for independent samples indicates that the differences are significant at the .01 level.

Summary and Conclusions

The results of this study indicate that the number of extraordinary item and cumulative effect events did not vary significantly during 1973-80, but increased substantially during 1981-84. The number of events during those years which increased net income was substantially larger than the number which decreased net income. These positive events also represented significantly larger monetary totals than the totals of the negative events. There is also substantial evidence that the mix of those events tended to change during the last three years of the study. Specifically, cumulative effects and debt extinguishments were reported in greater number during the later years.

In order to further analyze the reasons for these variations, the data were restructured to focus on the discretionary nature of the reported events as related to the direction of the impact on net income. From those data, an inference could be made that discretionary events tended to raise net income, while non-discretionary events (excluding NOLs) tended to reduce net income. This inference supports the assertion that many extraordinary item/cumulative effect transactions are engineered by management to produce a more favorable reported net income than would otherwise be the case.

Footnotes

[1] It is interesting to note that when a similar directional test for discontinued operations was performed, it could be concluded (Alpha = .051) that the effect on income would be negative; when the number of companies reporting discontinued operations was added to those reporting EI/CE, the likely effect on income was positive, as is the case for EI/CE alone.

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FINANCING THE LEVERAGED BUYOUT

*Richard Klein**

One of the most important new financing techniques to evolve in recent years is leveraged buyouts (LBOs). Since 1981, more than $62.8 billion has been invested in firms using this method.[1] In the first half of 1986 alone, there were 111 LBOs with a dollar value of $13.7 billion.[2] This article defines LBO restructuring, investigates why the technique has been so popular in recent years, and demonstrates how an LBO might be accomplished. Also examined are the roles of the participants in an LBO financing, as well as internal sources of funds. The article suggests that the use of LBOs as a financing technique will continue, but at a much slower pace.

LBO Restructuring Defined

In an LBO, a small group of investors acquire a company or a subsidiary of a large corporation in a transaction financed primarily by debt. This debt is normally collateralized with the assets and cash flow of the acquired firm. Typically, 80.0 to 90.0 percent of the purchase price is financed by these asset-based loans, with the remaining 10.0 to 20.0 percent being furnished by the equity investors. The significant borrowing involved in the financing is the basis for the description of such transactions as "leveraged buyouts." Thus, an LBO is basically the substitution of new debt for old equity. Furthermore, management participates as an equity investor (generally with an ownership position of at least 10.0 percent of the outstanding shares) and continues to manage the business once the transaction is realized. (Non-management buyouts are simply leveraged acquisitions and are not discussed in this article.)

Categories of LBOs include: (1) a publicly held firm going private, (2) a division or subsidiary being purchased from a parent concern, and (3) the sale of a closely held private company to another group of investors. If the LBO is designed to take a public company private, the public stockholders are offered cash and/or junior debt securities. If the LBO involves a parent-subsidiary relationship, the parent might be willing to accept subordinated notes as part of the payment.

Factors Encouraging Use of LBOs

Reasons contributing to the intense utilization of the LBO technique include deconglomeration, publicity, high returns, "corporate raiders," availability of financing, lower interest rates, and the quest for entrepreneurship. Following the rush to diversify in the 1960s and 1970s, the trend today is to deconglomerate and return to the parts of the business where the corporation has its greatest strengths. Today's market believes that many companies are worth more in pieces, and the smaller segments can be managed more efficiently by owner-managers. Thus, conglomerates have been spinning off their units as they try to regain their corporate focus. These "spin-offs" enable firms to realize hidden values from units which were not adequately recognized by the stock market. Additionally, the LBO technique has provided companies with a new means of selling a division.

A second reason fostering the use of LBOs is the pervasive publicity surrounding the remarkable returns earned on the LBO of Gibson Greeting Cards. That firm was acquired from RCA for $80.0 million in 1982, and a year and a half later, at an initial public sale of common stock, Gibson was valued at $290.0 million.

An important factor stimulating the use of LBOs by public companies is the activities of "corporate raiders." Firms such as Dan River and Blue Bell utilized the LBO technique to go private in order to escape hostile takeover attempts.

Another reason for the rapid growth of the LBO technique in recent years has been the huge supply of funds that commercial banks and other financial institutions have provided LBO candidate firms. Stymied by failures in international lending and real estate, and frustrated by the lack of demand for loans for normal business growth, banks have had large amounts of loanable funds available. Consequently, LBOs have provided a substantial outlet for these bank funds. Additionally, junk bonds have furnished a new and huge source of funds with which to finance the LBO's subordinated debt. Instead of trying to earn large rewards through risky business ventures, investment firms have switched their risks. Now, they want to place their funds into risky financing of "safe" businesses, such as old-line manufacturers and retailers.

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The desire to be an entrepreneur and to reap substantial rewards from one's labor has prompted many management personnel to seek to acquire their division or firm through an LBO. Entrepreneurially-driven managers have become owners with substantial equity ownership. Other factors which stimulated the growth of LBOs in past years included inflation, which caused a high replacement cost versus a low relative market cost for existing assets; and favorable tax laws, which permitted the deduction of huge amounts of interest and accelerated depreciation on used assets as tax deductible expenses. Thus, several factors, all occurring at the same time, have fostered the growth of LBOs.

How an LBO is Accomplished

Table 1 presents a hypothetical example of a leveraged buyout. The example assumes that outlays for capital expenditures in the hypothetical firm equal depreciation expense, and no additional working capital is needed. In actual practice these assumptions may not be made, and earnings may not equal cash flows. However, firms requiring large additional sums to be expended for capital investments do not normally make good candidates for LBOs because the cash flows being generated are needed to service the debt.

In organizing an LBO, the proposer must first start with the firm's cash projections in order to ascertain if the projections can support an LBO. Numerous practitioners argue that cash flow analysis is the single most important element in designing an LBO. The hypothetical model in Table 1 assumes that earnings before interest and taxes is $20,000,000 in year 1, and that this income figure increases at a rate of 6.0 percent per year. In order for an LBO to be viable, the cash flows must be steady and highly reliable. The first two years after the completion of an LBO restructuring are usually the most crucial. Careful monitoring of assets is critical during this time period because lenders look to the cash flows and/or the sale of assets to service the debt.

The example postulates a purchase price of $100.0 million, with the senior lenders providing 60.0 percent, the subordinated lenders supplying 30.0 percent, and the equity participants investing 10.0 percent. As typical in any LBO, the example illustrates that the principals invest comparatively little of the total required funding, and the newly organized firm has a very high debt-to-asset ratio. The LBO enables the firm to borrow funds at levels similar to conventional project financing.

In organizing an LBO, the proposer would first realistically assess how much is needed to pay the public stockholders in a going-private LBO transaction or a parent firm in the acquisition of a division. This amount should be close to the maximum price that can be afforded in order to deter competitive bids and lawsuits. After determining the price range that can be paid, the LBO organizer finds the financial structure that best serves the client management. Table 1 assumes a marginal tax rate of 40.0 percent.

Senior debt holders such as commercial banks normally want to be substantially out of the LBO in five to seven years. For simplicity purposes, the hypothetical example assumes a fixed rate term loan of 10.0 percent with a life of seven years. In reality, the loan is more likely to be a floating rate term loan with an interest rate 100 to 300 basis points above the prime rate. Banks prefer to see interest coverage ratios of at least 1.5 times earnings. Usually the senior debt must be paid off before the subordinated debt repayment begins.

The hypothetical example assumes that the subordinated debt is a fixed rate loan which will be paid off in years 8, 9, and 10. The interest rate on the hypothetical subordinated debt is a fixed 12.5 percent. Because the debt holders might be insurance companies and/or pension funds with long-term obligations, these institutions normally prefer longer-term securities.

The going concern value of the hypothetical firm in year 10 is $81,094,990. This figure is conservative because it

Table 1

HYPOTHETICAL EXAMPLE OF A LEVERAGED BUYOUT, TEN-YEAR PROJECTED CASH FLOW ANALYSIS

Year	Earnings Before Interest and Taxes	Interest on Senior Debt	Interest on Subordinated Debt	Earnings Before Taxes	Earnings After Taxes	Repayment of Senior Debt	Repayment of Subordinated Debt	Earnings Available to Equity	"Going" Concern Value	Cash Flows to Equity-Discounted at 25%
1	$20,000,000	$6,000,000	$3,750,000	$10,250,000	$ 6,150,000	$ 6,324,330		$ (174,330)		$ (139,464)
2	21,200,000	5,367,567	3,750,000	12,082,433	7,249,460	6,956,763		292,697		187,326
3	22,472,000	4,671,891	3,750,000	14,050,109	8,430,065	7,652,439		777,626		398,145
4	23,820,320	3,906,647	3,750,000	16,163,673	9,698,204	8,417,683		1,280,521		524,501
5	25,249,539	3,064,878	3,750,000	18,434,661	11,060,797	9,259,452		1,801,345		590,265
6	26,764,512	2,138,933	3,750,000	20,875,579	12,525,347	10,185,397		2,339,950		613,404
7	28,370,382	1,120,394	3,750,000	23,499,988	14,099,993	11,203,936		2,896,057		607,347
8	30,072,605		3,750,000	26,322,605	15,793,563		$ 8,847,926	6,945,637		1,165,285
9	31,876,961		2,644,009	29,232,952	17,539,771		9,953,917	7,585,854		1,018,156
10	33,789,579		1,399,770	32,389,809	19,433,885		11,198,157	8,235,728		884,505
10	Going Concern Value								$81,094,990	8,707,508
										PV = $14,556,778
										NPV = $ 4,556,778

assumed that the earnings before interest and taxes (EBIT) did not increase after year 10. In order to obtain the going-concern value, the firm's EBIT of $33,789,579 was multiplied by one minus the tax rate (or .6) to secure an earnings after taxes (EAT) figure of $20,273,747. Then the EAT was divided by 25.0 percent to obtain the $81,094,990 figure. The 25.0 percent capitalization rate is the required rate of return for equity investors.

The net present value of $4.6 million results after the subtraction of the initial investment of $10.0 million. Theoretically, the LBO is therefore viable.

In an LBO, the first priority is servicing the debt. Thus, managers must concentrate on managing the entity's cash flow and not the maximization of share value or the growth of earnings.

In organizing an LBO, the developer generally utilizes a computer-based financial spreadsheet system. The first step is to establish a business plan with reasonable assumptions and then calculate the cash flows to each of the participants. Then, using the "what if" capability of the modeling system, the developer can simulate various scenarios. Computer-based financial modeling is essential in determining the viability of the LBO because there will be numerous changes to the LBO restructuring.

Role of the Participants

Parties involved in an LBO might include commercial banks, investment bankers, LBO specialty firms, insurance companies and pension funds, purchasers of junk bonds, outside equity investors, and management. The role of each of these possible participants in an LBO is analyzed in this section.

Most LBOs consist of three layers of financing: (1) the senior debt which is supplied mainly by commercial banks, (2) the subordinated debt which can be obtained from insurance companies and pension funds or through the sale of junk bonds, and (3) the equity portion which is provided by outside equity investors and management. Commercial banks normally provide the largest segment of the financing for an LBO. Banks have been attracted to participate in LBOs because they can charge a significantly higher rate on a buyout loan than they can on a conventional loan, and they can have the opportunity to provide the LBO company with a variety of banking services.

Many LBO candidates utilize asset-based financing to secure their senior debt. With asset-based lending, the lenders look at the collateral as well as the cash flows. A formula based on the marketability of the assets determines the amount of credit available. A typical formula may include 80.0 percent of accounts receivable, 50.0 percent of the current market value of the inventories, and 50.0 percent of the appraised value of land and buildings.[3]

"Strip financing" is the term used when an institution participates in more than one type of LBO financing, generally on a pro rata basis. For example, a bank may extend senior debt and subordinated debt as well as take an equity position in the company.

Investment banking firms regularly participate in an LBO as the representative of the management group. For a fee, the investment banker organizes the LBO restructuring and arranges the financing. Secondarily, they may also have the opportunity to invest in the LBO alongside management. In addition, these investment bankers may be called on to provide professional services in the future for the firm being purchased through an LBO.

A major stimulant to the use of the LBO technique in recent years has been the establishment of leveraged buyout specialty firms such as Forstmann Little. The objective of this type of firm is to invest the capital of its general and limited partners in leveraged buyouts. For instance, Forstmann Little manages two partnerships: one is a fund for equity acquisitions and the other is a fund for the acquisition of subordinated debt. The firm is a general partner in both funds and also earns portfolio management fees. Limited partners participating in the equity fund may include family groups, pension plans, and bank holding companies, while the limited partners in the subordinated debt fund can include pension funds and insurance companies. Because of the existence of both funds, Forstmann Little is able to provide both equity funds and subordinated debt in an LBO restructuring. Normally, the LBO specialty firm participates as a member of the acquired firm's board of directors and takes an active role in managing the business. In effect, the LBO specialty firm looks like a conglomerate but acts like a mutual fund while filling the role of a venture capitalist.

The fourth major category of institutions that participate in financing LBOs are insurance companies and pension funds. This type of institution invests in the subordinated debt of the LBO-candidate firm. The name of this financing is called "mezzanine financing," whereas investments in common stock are regarded as "orchestra financing," and senior debt securities are considered "balcony financing."

Generally, there is no amortization of the mezzanine financing until the senior debt is paid in full. Institutions that provide funds to purchase the LBO's subordinated debt usually do not want this debt refunded in advance because they have long-term contractual liabilities that must be met. It should be noted that there are substantial penalties for prepayment of this debt. Additionally, they may require some form of warrants or "equity kickers."

The financing in this "mezzanine" layer can be highly innovative. For instance, the Reeves Brothers LBO originally involved senior subordinated participating notes, zero coupon junior subordinated notes, and cumulative preferred stock without a call provision. Some firms engaged in an LBO restructuring have even issued "income type" bonds which are then used for subordinated debt.

At times, insurance companies may want to invest in some senior debt so that they are not wholly subordinated to the banks. Reportedly, the direct role of insurance companies in LBO financing has declined in recent years.

Most recently, the fastest growing source of subordinated funds is junk bonds. These lower-rated bonds have been replacing the subordinated debt issued directly to insurance companies because they can be issued more cheaply. Pioneered by the investment banking firm of Drexel Burnham, junk bonds now account for more than 21.0 percent of the corporate bond market.[4] Purchasers of these junk bonds have included savings and loan associations as well as insurance companies. Junk bonds are used in the larger LBO restructuring when it is difficult to get large amounts of subordinated financing.

In a junk bond financing, the investment banking firm may privately place the debt with 50 or fewer investors in order to avoid registering with the SEC. Then, in six months the investment banker may exercise its "best efforts" to register the offering with the SEC in order to make the debt "public." The junk bond indenture agreement may contain a clause which prohibits the holder of the bond from forcing the issuer into bankruptcy unless senior debt holders give their permission. The bond can be non-callable for three years and then can be callable at a premium of one year's interest from the year of issuance, declining linearly each year until maturity.

Outside equity investors in an LBO may include investment bankers, LBO specialty firms, the parent company in the sale of a subsidiary, and venture capitalists. If successful, the annual returns on equity in an LBO can be as high as 45.0 to 50.0 percent. Generally, outside equity investors wish to get out of the restructuring within five to seven years.

Finally, the group of investors considered to be the most crucial to the success of the LBO is the current management team. Other investors, whether they be outside equity investors, subordinated debt holders, or banks, generally believe that the key managers should invest their own money in the equity portion of an LBO restructuring. One of the main tenets of the LBO concept's viability is to return a business' ownership to the people who manage the business.

Positive interrelationships among the LBO participants are extremely important to the success of the venture. Because of the high debt leverage and the subsequent monitoring of the situation, a close working relationship among the participants is essential. However, conflicts of interest can arise among the parties in an LBO. For instance, the venture capitalist would try to obtain favorable terms from the banker for the LBO financing.

Other Financing Sources

In order to help repay the debt incurred in an LBO restructuring, firms have utilized internal sources of funds. Companies have reduced investments in such assets as receivables, inventories, real estate, and overfunded pension funds, and have sold business units. For instance, the apparel firm of After Six utilized an LBO to go private. On March 31, 1984, the receivables comprised 56.3 percent of the firm's total assets of $50.2 million.[5] Thus, in order to become more liquid, the board of directors determined that the company should reduce its investment in receivables.

Undervalued and excess inventories can be important sources of funds for firms which are trying to reduce their LBO debt, because the firms can cut their inventory levels. For instance, Blue Bell's LBO prospectus disclosed that inventories would have been higher by $54.4 million on June 30, 1984, if they were stated in the lower of replacement cost or FIFO.[6] The firm reported $686.6 million in total assets on that date.

The sale of excess real estate provides another source of funds to reduce the LBO debt. Cone Mills' LBO prospectus disclosed that management valued Cone's non-manufacturing real property at $41.6 million, which was substantially in excess of the $9.0 million in book value of such properties.[7] Reportedly, Cone Mills later sold some real estate to reduce its LBO debt.

Excess employee retirement plan assets can be utilized to help meet capital and/or cash flow requirements in LBOs. For instance, actuaries determined that the assets held under the pension plans of Cone Mills exceeded the present value of the plan benefits (vested and non-vested) by approximately $50.0 million.[8] The excess assets were to be returned to Cone after the Pension Benefit Guaranty Corporation and the Internal Revenue Service gave the necessary approvals. The benefits promised after terminating the old pension plans were no less than those which were promised because the firm purchased annuities from an insurance company which provided for these benefits.

A firm may also sell units of its business in order to meet debt service requirements. In 1985, Dan River sold five plants located in Greenville, South Carolina, to ALCHEM Capital. In effect, certain LBOs are engaged in a partial liquidation.

Conclusion

In recent years, LBO restructuring has become an extremely important financing technique. Because of the high returns being earned, the number and size of the new LBOs have increased at an extremely rapid pace.[9] The LBO concept is basically a sound idea; however, management should not take LBO restructuring to the extreme of being too overly leveraged. Reliable cash flows must remain the most important factor to consider when structuring an LBO.

LBOs are organized differently today than they were just a few years ago. Because of lower interest rates, many managements are less afraid of leverage and high fixed charges. In contrast, the lenders want a larger equity cushion, and, in some cases, this equity takes the form of preferred stock. Additionally, senior lenders such as commercial banks now require that subordinated debt holders finance a larger proportion of the outstanding debt.

Innovative financing techniques abound in LBO restructuring, with an example of this creativeness being the offer of preferred stock which is exchangeable after the second year, at the company's option, into subordinated debt. The use of junk bonds has dramatically changed the subordinated debt segment of LBO financings. Thus, executives in companies contemplating an LBO must carefully examine the role of *all* potential participants before embarking on such an endeavor.

However, given (1) the increase in stock prices of many corporations, (2) the changes in the 1986 tax law limiting depreciation allowances on used assets, (3) the visible concern of the Federal Reserve over the large amount of outstanding bank LBO loans, and (4) recent scandals, it appears likely that the pace of new LBOs will slow down. Nevertheless, LBOs will continue to be a widely applicable financing technique.

Footnotes

[1] "A Feverish Market," *Mergers and Acquisitions*, November-December 1986, p. 45.

[2] Ibid.

[3] Frederick S. Gilbert, Jr., "Looking at Leveraged Buyouts," *The Bankers Magazine*, May-June 1983, p. 56.

[4] "Junk Bonds Aren't About to Go Away," *Business Week*, December 8, 1986, p. 35.

[5] *Prospectus of After Six, Incorporated*, August 8, 1984, pp. 4 and 29.

[6] *Prospectus of Blue Bell, Inc.*, October 26, 1984, p. F8.

[7] *Prospectus of Cone Mill Corporation*, February 23, 1984, p. 5.

[8] Ibid., p. 18.

[9] "Leveraged Buyouts Aren't Just for Daredevils Anymore," *Business Week*, August 11, 1986, p. 50.

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HOW LARGE COMPANIES HAVE ADJUSTED THEIR CAPITAL-BUDGETING DECISIONS FOR INFLATION

*Eurico J. Ferreira and C. Don Wiggins**

Introduction

The recent low levels of inflation in the United States have led to relatively little current interest in this phenomenon. This is contrary to the late 1970s and early 1980s when every segment of society felt the far-reaching effects of price increases on all phases of economic life.

Various reasons, however, justify that managers of American companies should be concerned with the subject at any time. First, a great deal of American companies have branches in countries where inflation is not under control. Second, a number of surveys [10, 11, 12, 13, 17] have looked at capital-budgeting practices in large United States firms, but few have included anything more than incidental questions about inflation. Third, a high inflationary environment can always return. Fourth, in general, scholars in finance and economic circles have accepted the uneven impact of inflation on financial market values (see, for example, [4, 9, 11, 15]) that show the inadequacy of rules such as discounting nominal cash flows by nominal rates, or real cash flows by real rates.

In this paper, an update of capital-budgeting practices with respect to inflation in large United States companies is provided. This paper should be useful particularly to practitioners and academic people in finance, accounting, and economic areas. First, general inflation practices, to some extent a neglected aspect in previous studies of capital-budgeting practices, are summarized so that corporate decision-makers and academicians can use the results to compare those practices in large American companies with principles and processes found in the literature. Second, several apparently weak or erroneous practices are disclosed.

To collect the necessary information, initially 500 companies from the New York Stock Exchange were selected randomly. Twenty-nine financial intermediaries were dropped later to compose a final sample of 471 companies. A questionnaire with a cover letter was sent to the chief financial officer of each company. (See Appendix 3 for the questions related to inflation practices.) Ninety-eight usable responses were obtained in the first phase. A follow-up reminder letter with the questionnaire was sent to the initial nonrespondents. Twenty-three additional responses were obtained. A third letter without the questionnaire was mailed to the remaining 350 nonrespondents. No additional responses were obtained. As a result, 121 usable responses were obtained and used in this study. These usable responses provided a twenty-six percent response rate. The size of the respondents was measured by sales and total annual capital budget. Respondents' sales are shown in Table 1 and annual capital budgets in Table 2.

Sample sizes, responses, and response rate of several recent studies made between 1975 and 1981 that dealt with capital-budgeting practices are listed in Appendix 1. Six of the nine studies had either a high number of responses or a higher response rate than this study. This is attributed to our sample procedure where an initial random sample of

Table 1
COMPANIES' ANNUAL SALES

Sales	Number of Companies
Less than $250 million	6
$250-$500 million	31
$500-$750 million	10
$750 million - $1 billion	12
$1 - $1.25 billion	2
$1.25 - $1.5 billion	9
$1.5 - $1.75 billion	6
$1.75 - $2.0 billion	4
over $2.0 billion	38
no response	3
Total	121

---

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Table 2
COMPANIES' ANNUAL CAPITAL BUDGET

Capital Budget	Number of Companies
Under $5 million	7
$5 - $10 million	12
$10 - $50 million	33
$50 - $100 million	11
over $100 million	55
no response	3
Total	121

companies was drawn. Several of the other studies used a nonrandom, sample selection procedure. Significant response bias was not found because the twenty-three late respondents and the ninety-eight first respondents had no notable differences in size, industry classification or questionnaire responses. Appendix 2 indicates the sixty-six different SIC industry codes that were represented in the final group of 121 respondents. The sample represents an extensive cross-section of American industries.

Results

The first question on inflation practices (number 13 in the questionnaire) asked how the company includes inflation in the capital-budgeting process. Given the importance and potential effects of inflation on project performance and the fact that only relatively large companies were surveyed, one might expect all of the companies to adjust for inflation in some way. The majority did. Ninety-five of the 121 companies (seventy-nine percent) reported that they adjust for inflation in some manner; however, this also means that twenty-six (twenty-one percent) apparently do not adjust the capital-budgeting decision at all for inflation.

The purpose of the next question was to determine if there was any correlation between size, either in sales or in annual capital budget, and whether or not an adjustment was made. Tables 3 and 4 show these relations.

Table 3
COMPANIES' ANNUAL SALES
AND INFLATION ADJUSTMENT

Sales	Number of Companies Adjusting For Inflation	Companies Not Adjusting For Inflation
Less than $250 million	4	2
$250-$500 million	20	11
$500-$750 million	8	2
$750 million - $1 billion	8	4
$1 - $1.25 billion	2	0
$1.25 - $1.5 billion	8	1
$1.5 - $1.75 billion	5	1
$1.75 - $2.0 billion	3	1
over $2.0 billion	35	3
no response	2	1
Total	95	26

Table 4
COMPANIES' ANNUAL CAPITAL
BUDGET AND INFLATION ADJUSTMENT

Capital Budget	Number of Companies Adjusting For Inflation	Companies Not Adjusting For Inflation
Under $5 million	4	3
$5 - $10 million	9	3
$10 - $50 million	21	12
$50 - $100 million	10	1
over $100 million	49	6
no response	2	1
	Total 95	Total 26

From these two tables, size apparently does play a part in whether or not a company adjusts. Even though a large majority (seventy-nine percent) of companies adjusts, in both cases, smaller companies are less likely to do so than large companies. Only one out of thirty-eight companies with sales of more than $2 billion does not adjust for inflation, and only one out of thirty-eight companies with capital budgets in excess of $100 million fails to do so. Apparently, even though all of the companies in the survey are relatively large, size is related to sophistication in this area of capital-budgeting practice.

Question 13 also sought to determine how companies adjust for inflation. Two methods were specifically identified—adjusting cash flows upward or adjusting the cost of capital downward. If neither of these is used by their company, respondents were asked to specify the method used. Of those indicating their adjustment method—ninety-three useable responses—sixty-six (seventy-one percent) adjust cash flows upward and seven (eight percent) adjust the cost of capital downward. Twenty indicated "Other," but the majority of these appeared to be some form of cash flow adjustment.

At least four firms indicated that only cash outflows are adjusted for inflation. This indication will result in decisions that are more conservative than may be the actual case and will result in the rejection of some attractive projects.

Another apparent error is implicit in the responses. The twenty-one percent of respondents that do not adjust for inflation apparently use market rates to determine the cost of capital and to make capital investment decisions. This practice will cause cash flows to be understated relative to the cost of capital in that they are not adjusted upward for expected inflation. Market debt and equity costs do include a premium for inflation expected by the market. This also will result in the possible rejection of good projects.

These two previous points lead to an interesting observation. At least twenty-five percent of the responding firms apparently have conceptual errors in their capital-budgeting practices that could lead to poor decisions.

The next question (14 in the questionnarie) asked for those companies that do adjust for inflation, what price level is used? Multiple answers were given by some companies indicating, of course, the use of different indexes for different purposes. A summary of responses is given in Table 5.

Table 5
MOST FREQUENT PRICE LEVEL INDEXES USED

Index	Number of Companies Using
Consumer Price Index	23
GNP Implicit Price Deflator	29
Wholesale Price Index	10
An Industry Index	10
Internally Developed Index	41
Others	20

Of the "Other" responses, a wide variety of answers was given. These included the following:

1. Indexes consistent with interest rate projections
2. A fuel price index
3. Projections from economic forecast-service type
4. A composite index
5. Depends on what cash flows are being adjusted
6. Different rates are used depending on what is most appropriate
7. Depends on the type of expenditure to be considered
8. Varies by the type of business segment
9. The Handy Whitman Index
10. Varies with the type of product to be considered
11. Company's own price index
12. Over thirty indexes developed internally
13. Series that most closely fits to the items investigated
14. An appropriate index
15. Producer Price Index
16. Anticipated wage and energy increases

All of the answers indicate that many companies use a variety of adjustment indexes to adjust different items for inflation. This observation is further reinforced by answers to the next question (15a in the questionnaire), which asked if cash inflows and outflows are adjusted with different inflation rates. Of the ninety-five companies adjusting for inflation, thirty-two (thirty-four percent) adjust the two flows differently. Thus, about a third of the adjusting companies make the adjustment more specific by treating inflows and outflows separately.

The second part of this question and of the next question in the questionnaire (15b and 16b, respectively) sought to determine what indexes were used to adjust inflows and outflows. As might be expected, answers varied widely. They are shown in Table 6.

Question 17 in the questionnaire deals with an area that some capital-budgeting surveys have identified as a weakness in many companies—post audit and review of accepted projects. (See, for example [4, 14]). The question asked if companies reevaluate inflation rates included in the capital-budgeting decision once a project has been accepted. A review should be conducted for two reasons. First, to see if conditions have changed since the project was evaluated initially. For example, if an average-expected inflation changes from three percent to eight percent, a project that was attractive may become unattractive over its remaining life. Second, certain costs or revenues may have been omitted in the initial analysis of the project.

Table 6
INDEXES USED TO ADJUST
INFLOWS AND OUTFLOWS SEPARATELY

Number of Companies	Cash Inflows Adjustment Index	Cash Outflows Adjustment Index
5	Internally developed index	Internally developed index
3	Industry indexes	Industry indexes
14	Others	Others

Of the ninety-five companies that adjust for inflation, fifty-seven (sixty percent) do not subsequently review the project once it has been accepted. This observation is consistent with those made in other studies of general capital-budgeting practices and indicates a major weakness in the decision process of these companies.

The last question on the adjustment of inflation (18 in the questionnaire, asked how long the current inflation practices have been in effect. Possible responses ranged from one year to more than ten years. Responses are summarized in Table 7.

Table 7
LENGTH OF TIME THAT CURRENT INFLATION
PRACTICES HAVE BEEN IN EFFECT

Responses	Number of Companies	Percent
One year or less	5	6
1 - 5 years	30	38
6 - 10 years	24	31
more than 10 years	15	24
Total	78	99*

*rounding error

These responses are not surprising. The vast majority of the companies responding, fifty-nine (seventy-five percent), began adjusting for inflation since 1972. This is coincidental with the surge in inflation that occurred in that time period and is the most likely cause of the companies taking inflation into account in the capital-budgeting decision.

Summary and Conclusions

Before drawing any conclusions, some limiting aspects should be mentioned. First, survey studies typically involve some nonresponse bias, and although steps were taken to ensure a high response rate, this study was no exception. Second, the questionnaire was sent to the chief financial officer, but in several cases, the officer passed the questionnaire to subordinates. Although it was noticed that the subordinates were all highly ranked executives, there was always a chance that the subordinates' views differed from the chief financial officers' views, and thereby, an inadequate report of those firms' procedures may have been given in some cases.

With these caveats in mind, it is worthwhile to report the following major findings. First, the majority of firms (seventy-nine percent) adjust for inflation in some manner, which supports the idea recognized by most scholars that inflation may not be seen as a neutral process that simply discounts nominal cash flows by nominal rates or real flows by real rates. Uneven effects of inflation on various cash flows, and thereby on the firm value, will require one to realize that risks associated cash flows are not equivalent, and therefore, a more complex treatment is needed.

Second, larger companies are more likely to adjust for inflation than smaller companies in the sample. This may be one practice that may explain the firm's size effect on stock market returns. Third, the majority of companies adjust for inflation by adjusting expected cash flows upward rather than the cost of capital. In this case, firms may rather use this practice because it is easier to adjust cash flows for inflation than financial market data associated with the firm's cost of capital. Fourth, at least twenty-five percent of the companies apparently have serious conceptual errors in their capital-budgeting practices, which may have affected their common stock returns accordingly; however, this may be a topic for further research.

Other findings of interest include the following: (1) a wide variety of inflation indexes were used, the most common being internally developed indexes; (2) about one-third of companies that adjust for inflation adjust cash flows and outflows separately; (3) approximately sixty percent of the companies that adjust for inflation do not review assumptions subsequently to see if conditions, and perhaps the decision, have changed; and finally, (4) most companies have begun adjusting for inflation since 1972.

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Appendix 1

SAMPLE SIZE, RESPONSES AND RESPONSE RATE OF SEVERAL STUDIES

Year	Study Reference	Sample Size	Responses	Response Rate
1975	[1], [8][a], [10][a]	n.a., 550, 500	33, 284, 109	n.a., 52, 22
1976	[11][b]	500	227	45
1977	[3][c]	268	103	38
1978	[12][d]	424	189	45
1979	[6][e]	1,000	200	20
1981	[4][e], [5][a]	1,000, 300	177, 193	18, 64
	This Study[f]	471	121	26

a - *Fortune 500*

b - Firms from membership in Financial Management Association.

c - Selected firms in *Forbes*.

d - Compustat annual industrial file with firms exceeding certain size and capital expenditure levels.

e - *Fortune 1000*

f - random sample of 471 NYSE firms.

Appendix 2
SAMPLE OF RESPONDENTS

SIC CODE	Industry	Number	SIC CODE	Industry	Number
1000	Metal Mining	2	3573	Electronic Computing Equip.	2
1031	Lead and Zinc Ores	1	3580	Refrig. and Service Md. Machine	2
1381	Drilling Oil and Gas Wells	1	3610	Elec. Transmission and Distr. Equip.	1
1499	Misc. Nonmetallic Minerals	1	3620	Electrical Industrial Appar.	1
1531	Operative Builders	2	3662	Radio-TV Transmitting Equip-Ap.	1
2000	Food and Kindred Products	2	3711	Motor Vehicles and Car Bodies	4
2010	Meat Products	1	3714	Motor Vehicles Parts, Accessor.	2
2030	Canned, Preserved Fruits, Vegetables	1	3720	Aircraft and Parts	2
2086	Bottled, Canned Soft Drinks	2	3721	Aircraft	1
2200	Textile Mill Products	2	3811	Engr. Lab and Research Equip.	1
2250	Knitting Mills	1	3841	Sing. and Med. Instruments and Ap.	1
2300	Apparel and Other Finished Products	1	3914	Silverware, Plateware	1
2400	Lumber and Wood Products	1	3940	Toys and Amusement Sports Goods	1
2600	Paper and Allied Products	3	3950	Pens, Pencil and Other Office Mat.	1
2510	Household Furniture	2	3990	Misc. Manufacturing Industries	2
2650	Paperboard Containers, Boxes	1	4011	Railroads - Line Haul Operating	2
2711	Newspapers: Publishing, Print	1	4210	Trucking - Local and Long Distance	1
2800	Chemicals and Allied Products	4	4511	Air Transportation-Certified	3
2810	Indl. Inorganic Chemicals	1	4811	Telephone Communications	1
2830	Drugs	2	4890	Communication Services N.E.C.	2
2844	Perfumes, Cosmetics, Toilet Preparations	2	4911	Electric Services	9
2870	Agriculture Chemicals	1	4923	Natural Gas Transnis-Distr.	1
2911	Petroleum Refining	3	4924	Natural Gas Distribution	2
3000	Rubber and Misc. Plastic Products	2	4931	Electric and Other Serv. Comb.	7
3079	Miscellaneous Plastic Products	2	5211	Retail-Lumber and Other Bldg. Mat.	1
3221	Glass Containers	1	5600	Retail Apparel Access Store	2
3290	Abrasive Asbestos and Misc. Min.	2	5812	Retail-Eating Place	2
3310	Blast Furnaces and Steel Works	5	5912	Retail-Drug and Propriet. Stores	1
3330	Prim. Smelt-Refin. Nonfer. Mtl.	1	6022	State Banks - Fed. Reserve Sys.	1
3444	Sheet Metal Work	1	6025	Natl. Banks - Fed. Reserve Sys.	3
3520	Farm and Garden Machinery Equip.	2	6199	Finance Services	2
3537	Indl. Trucks, Tractors, Trailers	1	7011	Hotel, Motels	1
3540	Metal Working Machinery and Equip.	3	7393	Serv. Detective and Protective	1
3560	General Industrial Mach. and Equip.	3	8200	Serv. Educational	1
			8911	Serv. Engineering and Architect	1

Appendix 3

13. How does your company take inflation into account in the capital-budgeting process?

____ No adjustments are made for inflation.
____ Cash flows are adjusted upward by using a projected inflation rate.
____ The cost of capital is adjusted downward by using a projected inflation rate.
____ Other (please specify) ________________________

14. If you do adjust for inflation, what price level index do you see? (Check more than one if appropriate)

____ Consumer Price Index
____ GNP Implicit Price Deflator
____ Wholesale Price Index
____ An industry index
____ An internally developed index
____ Other (please specify) ________________________

15. Do you adjust cash inflows and outflows with different inflation rates?

________ Yes ________ No

If "Yes," what index do you use for:

Cash inflows ________________ Cash outflows ________________

16. Do you adjust specific inflows and outflows with different inflation rates (e.g., labor costs vs. raw material costs or prices of one product vs. prices of another product)?

________ Yes ________ No

If "Yes," what indexes do you use?

Item	Index
______	______
______	______
______	______

17. If you adjust for inflation, do you reevaluate a project once it has begun if your expectations about future inflation rates change?

______ Yes ______ No

18. Approximately how long have the general capital-budgeting practices for risk and inflation described above been in effect?

Risk Practices		Inflation Practices	
______ One year or less	______ 6-10 years	______ One year or less	______ 6-10 years
______ 1-5 years	______ More than 10 years	______ 1-5 years	______ More than 10 years

19. What are your company's total annual sales?

______ $250-$500 million ______ $500-$750 million ______ $750 million - $1 billion

______ $1-$1.25 billion ______ $1.25-$1.5 billion ______ $1.5-$1.75 billion

______ $1.75-$2.0 billion ______ over $2.0 billion

20. What is your company's annual capital budget?

______ under $5 million ______ $5-$10 million ______ $10-$50 million

______ $50-$100 million ______ over $100 million

CAN SHORT TERM INTEREST RATES BE USED TO PREDICT INFLATION?

P.R. Chandy and Mark Cross[*]

Introduction

Several studies have attempted to explain the relationship between inflation and interest rates. The majority of empirical evidence to date is contrary to the concept of an efficient market. Fisher (1930) and a number of other empirical studies did not find a relationship between current interest rates and rates of inflation observed in the future. Carlson (1977), Nelson and Schwert (1977), Joines (1977), and Hess and Bicksler (1975) found evidence that the market ignores some of the readily available information concerning the rate of inflation when it sets the nominal interest rate. This study will extend the work of Fama (1975, 1976, 1977) in the field of market efficiency for Treasury Bill securities by using a time period in which the rate of inflation was significantly different (higher) from that of the period used in the Fama study.

An efficient market uses all relevant information to set prices correctly. In such a market, there should be a relationship between the current nominal interest rate and the rate of inflation observed in the future. This assumes that the inflation rate is somewhat predictable from past data, and the equilibrium expected real return does not vary sufficiently to offset changes in the expected inflation rate. The market is inefficient if the future inflation rate can be predicted from past information, and no significant relationship can be found between the current interest rate and the future inflation rate. The market under such a scenario overlooks relevant information about the future inflation rate when setting the nominal interest rate.

Most of the studies of the impact of inflation on yields use the estimated future (or ex-ante) rate of inflation for all maturities being examined. If on average, inflation estimates by market participants are realized, the actual rate of inflation (expost) could be used as an estimate of the expected (ex-ante) inflation rate. Fama (1975) tested this concept using yields on 1-month T-Bills over the period of 1953 to 1971. He concluded that the Treasury Bill market was efficient during this period. The nominal interest rates captured all the information about future inflation rates contained in the historical inflation rates. Fama's study also concluded that expected real returns on Treasury Bills were constant during the 1953 to 1971 period. A later study by Feldstein and Summers (1978) found that the maximum expected interest rate (nominal rate) rises by approximately the same amount as the inflation rate, but the real interest rate (net of tax) available to investors is reduced dramatically by inflation.

Objective

The rate of inflation has increased dramatically since the 1953 to 1971 time period studied by Fama (1975). In light of the changes that have occurred, the question arises whether Fama's conclusions of market efficiency are period dependent. This paper will examine whether the relationship found by Fama, during a period in which the average yearly inflation rate was approximately four percent, continues to hold during a period (1975 to 1980) in which the average yearly inflation rate was approximately 9.6 percent. Actually, a dramatic acceleration in the underlying inflation rate occurred during the latter period. The average rate of inflation from January 1975 to June 1977 was 6.8 percent while it was 10.9 percent from July 1977 to December 1980 (*Business Conditions Digest*, various issues).

If Fama's results are not period dependent, then market efficiency in the Treasury Bill market would have important implications for economic entities. Examples of economic entities, which could utilize this information to their advantage, include utility and insurance companies, pension actuaries, and individual workers. Utility and insurance companies, along with other rate regulated industries, are concerned with building future inflation rates into their current rate structure because of the lengthy lag period involved in having new rates approved. The funding requirements of pension funds such as Social Security, whose payments are tied to the inflation rate, could be more assured of protecting themselves against inflation.

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Data

The time period for this study covered seventy-two months, from January 1975 to December 1980. The one-month nominal rate of interest R_t used in the tests was taken from *The Wall Street Journal* at the beginning of the month t as the average of the bid and asked prices for Treasury Bills maturing closest to the end of month t.

The Bureau of Labor Statistics Consumer Price Index (CPI) and Wholesale Price Index (WPI) were used to estimate Delta, the percentage rate of change in purchasing power from end of month t-1 to end of month t. (See Appendix "A" for details of calculation). The data came from various issues of *Business Conditions Digest.* The real return from t-1 to t on a one-month bill is found by adding the rate of change in purchasing power to the nominal rate of interest.

Methodology

Testing the efficient market hypothesis means that the one-month nominal interest rate R_t determined in the market at the end of t-1 will be based on correct use of the relevant information about the expected value of Delta, which is present in the historical values of change in the rate of purchasing power. However, this hypothesis only has meaning if past rates of change in purchasing power reveal information about the future expected rate of change.

Sample autocorrelations of Delta for one-to-twelve month lags were calculated for CPI and WPI using the standard formulas. (See Appendix A for details).

Theoretically, all autocorrelations for a series of random numbers must be zero. If the autocorrelations of Delta are not equal to zero, then past rates of change in purchasing power include information about future rates. To test such a hypothesis, two tests were done. The first test was the Cochran Q (Siegel, 1956) as applied to autocorrelations. (See Appendix for details). Q is distributed as a chi-square statistic with k-1 degrees of freedom. The second test uses normal approximation of the sampling distribution as suggested by Anderson (1942), Bartlett (1946), and Quenouille (1940). If the sample based autocorrelations lie within a range specified by the mean plus or minus 1.96 standard errors (the normal curve area at the 0.05 level is 1.96), then it can be inferred that the data are random.

Similarly, the efficient market hypothesis concludes that the autocorrelations of the real return r_t are zero for all lags. Autocorrelations of r_t are calculated for one-to-twelve-month lags for the period 1975 to 1980, and tests such as the ones indicated above were applied to test the market efficiency. A constant equilibrium expected real return suggests that all variation through time in the nominal interest rate R_t is a direct result of variation in the market's anticipation of the expected value of Delta.

The least square regression coefficient estimates a_0, a_1, and a_2 were found for the period 1975 to 1980. (See Appendix "A" for details). Given R_t, the sequence of past values of the disturbance "e_t" in the model shown in Appendix "A" should be of no additional help in assessing the expected value of Delta. This implies that the autocorrelation of the disturbance "e_t" should be zero for all lags.

If periods of inflation or deflation persist, then Delta for the previous period is relevant information for assessing the expected value of current Delta. If this information is not used correctly by the market in setting R_t, then the coefficient for the second variable in the model shown in Appendix "A" will be nonzero. However, if the market is efficient, then the coefficient value will be zero and the autocorrelation of the disturbance "e_t" will be zero for all lags.

Results

In his original study, Fama (1975) found that the sample autocorrelations of Delta for different lags are similar in size with individual estimates in the range of 0.3. He concluded that past rates of change in purchasing power do have information about expected future rates of change in purchasing power. Table 1 provides the autocorrelations of Delta over the period of 1975 to 1980 along with the results of the statistical tests mentioned earlier in the paper. The results of the Cochran Q test and the normal approximation test show that the autocorrelations of Delta are not equal to zero; hence, past rates of change in purchasing power possess information about future rates. This confirms Fama's results.

Table 1
AUTOCORRELATIONS OF DELTA FOR ONE-MONTH INTERVALS
1975 - 1980

Autocorrelation (By Lag Periods)	CPI	WPI
1	0.79	0.55
2	0.57	0.36
3	0.41	0.37
4	0.33	0.09
5	0.13	0.04
6	-0.11	-0.09
7	0.14	-0.10
8	0.28	0.06
9	0.40	0.23
10	0.40	0.15
11	0.38	0.32
12	0.42	0.51
Std. Dev.	0.12	0.12
Q	85.73*	44.64*

*Significant at five percent level.

Fama also found that the expected real return on U.S. Treasury Bills are constant through time. Tables 2 and 3 present the results of the regression analysis. Fama found that the coefficient estimates of a_0 to be close to zero and a_1 close to minus one for the two regression models. Our results for the period of 1975 to 1980 indicate that for the CPI and WPI, a_0 is not statistically different from zero; a_1 is not statistically different from minus one. This again is consistent with Fama's findings. The results also show that dropping Delta for the previous period from the model has almost no significant effect on the coefficients of determination, which is consistent with the implication of market efficiency (i.e., that the value of R_t set at time t-1 summarizes any information in previous period Delta about the expected value of Delta).

Table 2
REGRESSION TESTS ON ONE-MONTH T-BILLS
$\text{Delta} = a_0 + a_1 R_t + e_t$
1975 - 1980
(Standard errors in parenthesis)

Delta	a_0	a_1	t^*	t^{**}	R^2
CPI	0.0066 (0.130)	-1.246 (0.251)	0.05	-0.98	0.26
WPI	0.4051 (0.512)	-2.028 (1.080)	0.791	-0.95	0.29

t^* : t statistic for coefficient a_0 (not significant at five percent)

t^{**} : t statistic for coefficient a_1 (not significant at five percent)

Table 3
REGRESSION TESTS ON ONE-MONTH T-BILLS
$\text{Delta} = a_0 + a_1 R_t + a_2 \text{ Delta } t\text{-}1 + e_t$
1975 - 1980
(Standard errors in parenthesis)

Delta t	a_0	a_1	a_2	t^*	t^{**}	t^{***}	R^2
CPI	0.0082 (0.063)	-0.676 (0.430)	0.554 (0.13)	0.13	-0.76	4.26	0.28
WPI	0.3013 (0.363)	-1.488 (0.762)	0.289 (0.11)	0.83	-0.64	2.63	0.30

t^* : t statistic for coefficient a_0 (not significant at five percent)

t^{**} : t statistic for coefficient a_1 (not significant at five percent)

t^{***}: t statistic for coefficient a_2 (significant at five percent)

Fama found that the sample autocorrelations of the real return r_t are zero for all lags. Table 4 provides the results of the autocorrelations of r_t along with the test results of several statistical tests. The Cochran Q values and the normal approximation test values indicate that the autocorrelations are significantly different from zero for all lags, for both CPI and WPI. Thus, contrary to Fama, but consistent with Hess and Bicksler (1975) and others, the efficient market hypothesis is rejected. R_t, the nominal rate, did not capture all the information about the expected value of Delta.

Fama found that the values of the coefficient of the second variable shown in Appendix "A" (reported in Table 3) are small and always less than two standard errors from zero, supporting the efficient market hypothesis. Our results show that for the CPI and WPI, these values are large and are more than two standard errors from zero. This again is contrary to Fama's findings. The large difference in the value of this coefficient between the CPI and WPI (Table 3) indicates that even though the CPI has more information about Delta, there is more available information in the WPI used to set the nominal return R_t.

Table 4
AUTOCORRELATIONS OF r_t FOR ONE-MONTH T-BILLS
1975 - 1980

Autocorrelation (By Lag Periods)	CPI	WPI
1	0.78	0.59
2	0.53	0.42
3	0.38	0.41
4	0.29	0.12
5	0.04	0.01
6	- 0.25	- 0.10
7	0.04	- 0.12
8	0.23	0.01
9	0.35	0.19
10	0.37	0.12
11	0.37	0.31
12	- 0.45	0.55
Std. Dev.	0.12	0.12
Q	78.89*	50.76*

*Significant at five percent.

Conclusion

The purpose of this study was to extend the work of Fama (1975) in the field of market efficiency of U.S. Treasury Bills. We used more current data with inflation rates more than two times that of the rate used in Fama's study.

The results show that past rates of change in purchasing power possess information about future rates, which is consistent with Fama's findings. Consistent with Fama's result, we found that the expected real returns on one-month T-Bills are constant during the period under consideration. However, contrary to Fama's findings, we found that the nominal rate R_t did not capture all the information about the expected value of the changes in purchasing power. This result and the results of the regression analysis on one-month T-Bill returns confirmed an inefficient market for one-month T-Bills during the higher inflationary period used in this study.

Thus, short-term interest rates would not seem to be accurate predictors of inflation during a high inflationary period. This is contrary to Fama's findings and would lead us to believe possibly that Fama's efficient market findings were period dependent and do not hold true during high inflation. However, measurement errors in the inflation and interest rates also might account for the inefficiencies in the market during the high inflation period. It is likely that individual investor differences concerning tax bracket, utility curve, and anticipated inflation rates would bring about varying perceived values of interest rates (return) and inflation among investors; thus, the use of just one measure as a proxy for inflation and interest rates for all investors could result in measurement bias.

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Appendix A
MODELS AND FORMULAS USED

1. Rate of Change in Purchasing Power

$$\text{Delta}_t \text{ for CPI} = \frac{\text{CPI}_{t-1} - \text{CPI}_t}{\text{CPI}_{t-1}}$$

$$\text{Delta}_t \text{ for WPI} = \frac{\text{WPI}_{t-1} - \text{WPI}_t}{\text{WPI}_{t-1}}$$

2. Autocorrelation of Delta

$$\text{Autocorrelation of Delta}_t = \sum_{t=1}^{n-i} \frac{(\Delta_t - = \bar{\Delta})(\Delta_{t+i} - \bar{\Delta})}{\sum_{t=1}^{n} (\Delta_t - \bar{\Delta})^2}$$

3. Cochran Q test

$$\text{Cochran } Q = T \sum_{i=1}^{k} \rho_i^2$$

where T = number of observations

4. Regression coefficient estimates of a_0, a_1, a_2

$$\text{Delta}_t = \alpha_0 + \alpha_1 R_t + \bar{e}_t$$

$$\text{Delta}_t = \alpha_0 + \alpha_1 R_t + \alpha_2 \text{Delta}_{t-1} + \bar{e}_t$$

MID-SOUTH ECONOMY

BUREAU OF BUSINESS & ECONOMIC RESEARCH THE FOGELMAN COLLEGE OF BUSINESS AND ECONOMICS MEMPHIS STATE UNIVERSITY

STATISTICAL SUPPLEMENT: THE MID-SOUTH ECONOMY

Economic activity for the first quarter of 1987 has indicated that the U.S. and Mid-South economies have remained sluggish. Uncertainty about the international trade deficit, the possible return of rising prices, and the effects of the new tax laws are dampening the prospects for continued moderate growth. While consumer confidence inched upward in January, retail sales are erratic and have been flat for the past six months. Growth in personal income has slowed, and sales of new homes registered its second consecutive monthly decline in February.

Industrial production has improved slightly over year-ago levels, but private domestic investment remains weak, primarily in structures. Overbuilding and effects of the new tax laws are expected to slow building activity for offices, retail, and multi-family structures. The single-family sector, however, is expected to continue its moderate growth. Some analysts anticipate steady rising prices, especially if there is a substantial narrowing of the international trade deficit. Growth in exports would cause a rise in capacity utilization, and with inventories currently at historically low levels, rising utilization rates would exert upward pressure on the price level.

The consensus forecast for 1987 points to moderate economic growth of between 2.5 and 3.0 percent. Unemployment, however, is anticipated to remain stalled between 6.5 and 7.0 percent. While employment growth for 1987 is expected to equal the 1986 rate, it is not expected to outpace the growth in the civilian labor force.

For the Mid-South states, the 1987 forecast is strongly linked to the prospects of consumer and defense spending, energy prices and agricultural exports. Improved consumer spending would help apparel, paper, and transportation equipment manufacturing across the Mid-South. Expected growth in the single-family housing sector would help the lumber and furniture industries. Continued growth in defense spending would improve the outlook for the space and shipbuilding sectors. Higher energy prices would significantly improve the outlook for the energy and chemical-related sectors in Louisiana. And, growth in agricultural exports would help stem the fall in net farm income.

The unadjusted Mid-South unemployment rate stood at 10.9 percent for January 1987, approximately the same level registered in January 1986. To a large extent, the unemployment problem is reflected in the increasing polarization between the urban and rural economies. Of the 170 counties in Arkansas and Tennessee, only 14.0 percent of these (mostly urban) have unemployment rates under 7.0 percent. Approximately 17.0 percent of the counties (mostly rural) have unemployment rates in excess of 15.0 percent.

Sales tax collections, a proxy measure of retail sales, declined throughout the Mid-South, presumably due to seasonal factors. Personal income growth in Arkansas, Mississippi, and Tennessee outpaced the national gain, while Louisiana registered a slight decline.

Agriculture

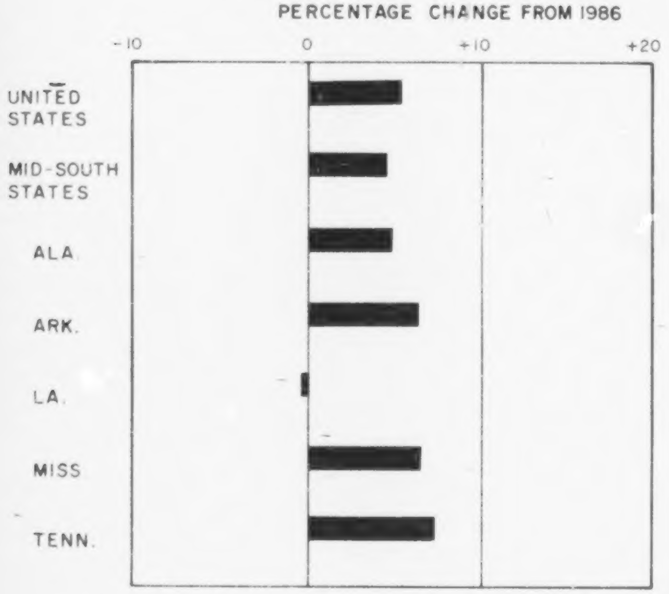
The USDA's annual survey of planting intentions revealed that farmers plan to cut back production substantially this year. The department indicated that the crop reductions were reflective of the federal programs aimed at reducing crop surpluses. Crop loans are harder to get because many lenders require farmers to sign-up for subsidy programs as a condition for obtaining the loans. Approximately 83.0 percent of corn acreage, 81.0 percent of wheat acreage, and 88.0 percent of cotton acreage are expected to be included in the reduction programs.

Also gathering momentum is a new conservation reserve program that rewards farmers who take highly erodible land out of production and penalize those who keep plowing marginal plots. So far, 19.5 million acres are in the reserve program, and by 1990, all farms are required to submit a conservation plan in order to participate in future government-sponsored programs.

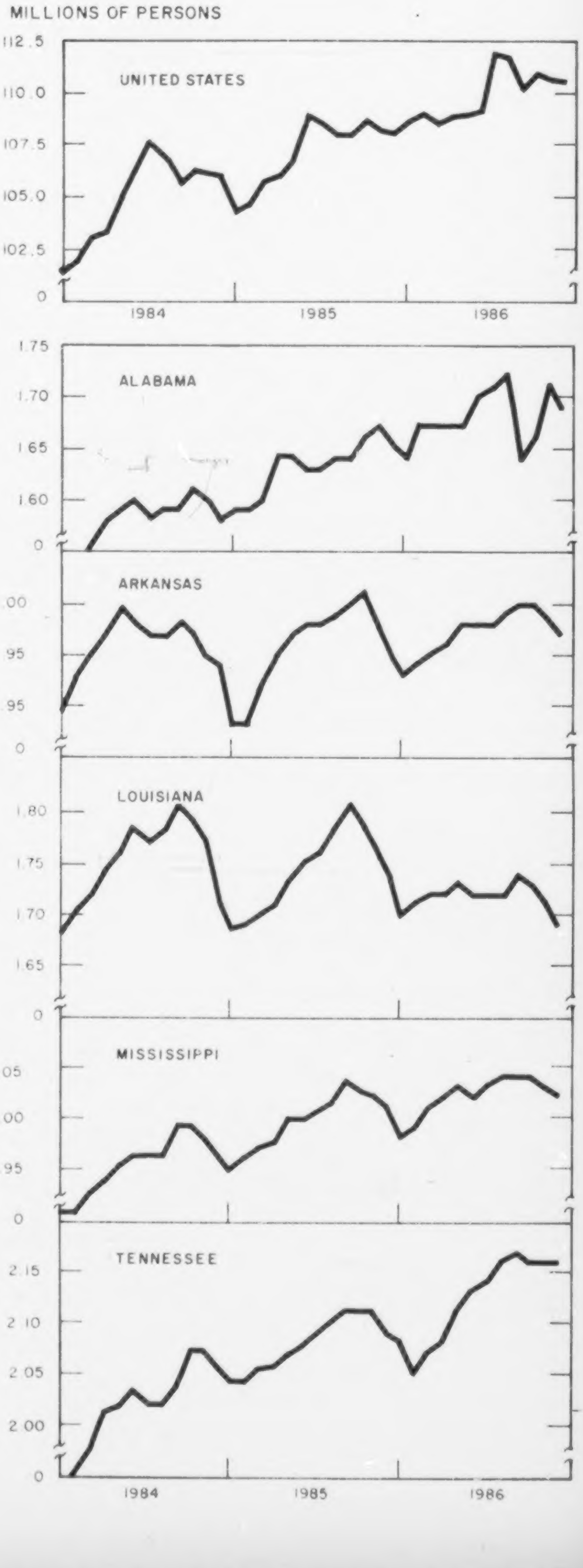
Elsewhere, the USDA reported that average farm prices in March were unchanged from year-ago levels. Higher prices for lettuce, cotton, cattle, and tomatoes were offset by lower prices for milk, hogs, strawberries, eggs, and sweet corn.

The general outlook for agriculture indicates that farm debt will shrink and land values will stabilize as farm incomes improve. The livestock, forestry, and fishery industries are expected to continue growing moderately. Problems, however, continue to plague the grain industries. Corn, wheat, and soybeans markets are facing challenges from world competitors. For example, Nigeria has recently

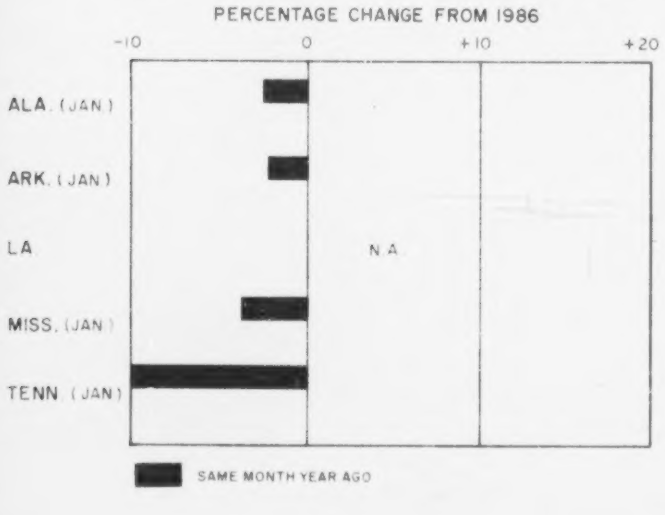
PERSONAL INCOME - I QTR. 1987



TOTAL EMPLOYMENT



SALES TAX COLLECTIONS 1987



SOURCES: BUREAU OF ECONOMIC ANALYSIS
STATE DEPARTMENTS OF EMPLOYMENT
SECURITY AND REVENUE.

banned wheat imports to help domestic producers; Turkey has completed a major dam project that is expected to develop some 2 million acres into fertile land. Europe, a major grain importer during the 1970's, has now become the third largest exporter of grains. Even China has become a net exporter of corn and soybeans. Additionally, the Soviet Union, which accounts for 25.0 percent of total grain imports, is expected to curtail grain imports below its previous five-year average. Many analysts believe that even with a lower value for the dollar, significant expansion grain exports will be difficult.

LABOR

The labor-market outlook for the U.S. and Mid-South indicates modest improvement at best. Job growth will continue, but will only match growth in the labor force. Minority and teenage unemployment rates remain in double-digits. And, the relatively low unemployment rate of 4.4 percent for married men is almost double the rate registered in 1979. However, total nonagricultural employment is expected to top the 111.0 million level later this year, the highest level on record.

For the Mid-South states, total nonagricultural employment rose slightly, up 0.8 percent from last January, while the number of persons unemployed climbed 10.5 percent. Arkansas and Tennessee were the only Mid-South states to register a decline in the number of persons unemployed. Mid-South manufacturing employment managed a slight gain compared to a decline nationally. Arkansas and Tennessee were the only Mid-South states to record a gain in manufacturing jobs.

Durable goods employment recorded a net decline of 1,000 jobs across the Mid-South, while nondurable goods employment registered a gain of 4,000 jobs. Industry-wise, solid gains were registered in the lumber, furniture, and transportation equipment sectors. On the nondurable side, robust gains were recorded in the food, textiles, and printing/publishing sectors.

CONSTRUCTION

For the twelve months ending December 1986 (compared to the similar 1985 period), the dollar value of total building permits across the Mid-South declined 13.8 percent, compared to 6.6 percent nationally. Residential building activity rose in all Mid-South states except Louisiana.

In terms of the number of dwelling units, single-family units rose 5.9 percent, while multi-family units, declined 8.4 percent. Nationally, single-family units rose 12.3 percent and multi-family units declined 12.9 percent. On the nonresidential side, all Mid-South states, as well as the nation, registered declines in the total dollar value of permits. Office building experienced the largest decline, while hospitals recorded the strongest gain across the Mid-South. The category of schools recorded substantial gains in Alabama and Tennessee.

LABOR JANUARY 1987	United States	Mid-South States				
		Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Civilian Labor Force	117,703,000	1,861,900	1,056,500	1,936,000	1,145,600	2,297,700
Percent Change Year Ago	+2.0	+ 2.4	+ 2.7	- 0.9	+ 1.8	+ 2.1
Unemployed	8,620,000	186,200	99,700	284,100	145,900	186,000
Percent Change Year Ago	+1.7	+ 6.0	- 2.2	+20.9	+16.5	-10.4
Unemployment Rate						
1986	7.3	10.0	9.4	14.7	12.7	8.1
1985	7.3	9.7	9.9	12.0	11.1	9.2
Non-Agricultural Wage & Salary Employees	101,741,000*	1,465,200	809,700	1,488,900	846,300	1,962,000
Percent Change Year Ago	+2.5	+ 1.7	+ 2.6	- 4.4	+ 0.3	+ 4.9
Manufacturing Employment	19,186,000*	354,400	213,600	164,200	219,400	492,200
Percent Change Year Ago	-0.6	- 0.6	+ 3.3	- 2.2	- 2.0	+ 1.4
Non-Manufacturing Employment	82,555,000*	1,110,800	596,100	1,324,700	626,900	1,469,800
Percent Change Year Ago	+3.7	+ 2.5	+ 2.4	- 4.6	+ 1.1	+ 6.1
Average Weekly Earnings of Production Workers in Manufacturing	$401.06	$359.21	$321.03	$442.49	$304.36	$365.15
Percent Change Year Ago	+1.6	+ 0.3	+ 3.6	+ 1.2	+ 2.2	+ 5.1
Average Weekly Hours of Production Workers in Manufacturing	40.8	41.1	41.0	41.2	40.1	41.4
Percent Change Year Ago	+0.2	+ 0.1	+ 2.5	- 0.9	- 0.7	+ 0.2
Average Hourly Earnings of Production Workers in Manufacturing	$ 9.83	$ 8.74	$ 7.83	$ 10.74	$ 7.59	$ 8.82
Percent Change Year Ago	+1.3	+ 0.3	+ 1.6	+ 2.2	+ 3.0	+ 4.9

*Seasonally adjusted.

Source: Departments of Employment Security and Survey of Current Business.

Mid-South construction employment declined slightly from year-ago levels, compared to a solid 4.8-percent gain nationally. Alabama and Tennessee were the only Mid-South states to experience a gain in construction employment, up 3.3 and 9.9 percent respectively. Louisiana experienced the largest decline, off 10,500 jobs over last January. Another 2,700 construction jobs were lost in Mississippi and Arkansas.

FINANCE

Total commercial bank deposits across the Mid-South were 8.3 percent higher than year-ago levels but underperformed the national gain of 11.2 percent. Savings deposits were substantially higher than last year inspite of the historically low level of personal savings in general. Interest rates have held steady with some analysis forecasting a slight upward trend if moderate growth continues and the values of the dollar drift lower.

Recent pronouncements by the Federal Reserve do not indicate whether it will limit monetary growth in the near future to curb inflation or continue an accommodative approach to avoid the threat of a recession. Stability in Federal Reserve policy is generally considered to be the best course for the near term. Overcapacity is expected to help keep borrowing costs from rising too rapidly. And, while the value of the dollar may edge downward, the decline may not be significant enough to adversely affect the general price level or interest rates.

In Mid-South banking news, State First Financial Corp., of Texarkana, Arkansas, entered the Texas market by acquiring the American National Bank of Texarkana, Texas, with assests of $56 million. Third National Bank of Nashville, Tennessee, acquired the People's Bank of Lebanon, Tennessee, expanding into a rapidly growing area just northeast of Nashville. Commerce Union Bank in Nashville, a subsidiary of Sun-Trust Bank of Atlanta, acquired First National Bancorp of Lewisburg, Tennessee. Finally, Community Bancshares of Blountville, Alabama, acquired the Morgan County and Madison County banks. Previously, the Madison County bank merged with the Central Bank of the South branches in the municipalities of New Hope and Curlay.

HOUSING

During the fourth quarter of 1986, Shelby County single-family permits and starts showed continued growth. Multi-family permits and starts, while still far below the levels of last year, showed increased activity in the fourth quarter.

Permits representing 6,287 residential units were issued in Shelby County in 1986, which reflects a 25.0 percent decline in activity when compared to last year. This decline may be attributed to a 53.1 percent decrease in permits (expressed in units) issued for apartments, condominiums, and townhouses. Similar declines in permits were issued for duplex construction. These sharp declines were mod-

CONSTRUCTION[1]	United States	Mid-South States				
		Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Total Building Percent Change Year Ago	- 6.6	+ 5.9	N.A.	-48.9	- 7.8	+ 2.5
Residential Building Percent Change Year Ago	+13.9	+22.6	N.A.	-28.0	+ 2.4	+14.9
Non-Residential Building[2] Percent Change Year Ago	-31.2	- 8.8	N.A.	-58.4	-19.0	-29.0
Total Dwelling Units Percent Change Year Ago	+ 1.0	+ 7.3	N.A.	-42.0	- 2.4	- 7.6

[1] Twelve-month cumulative rate.

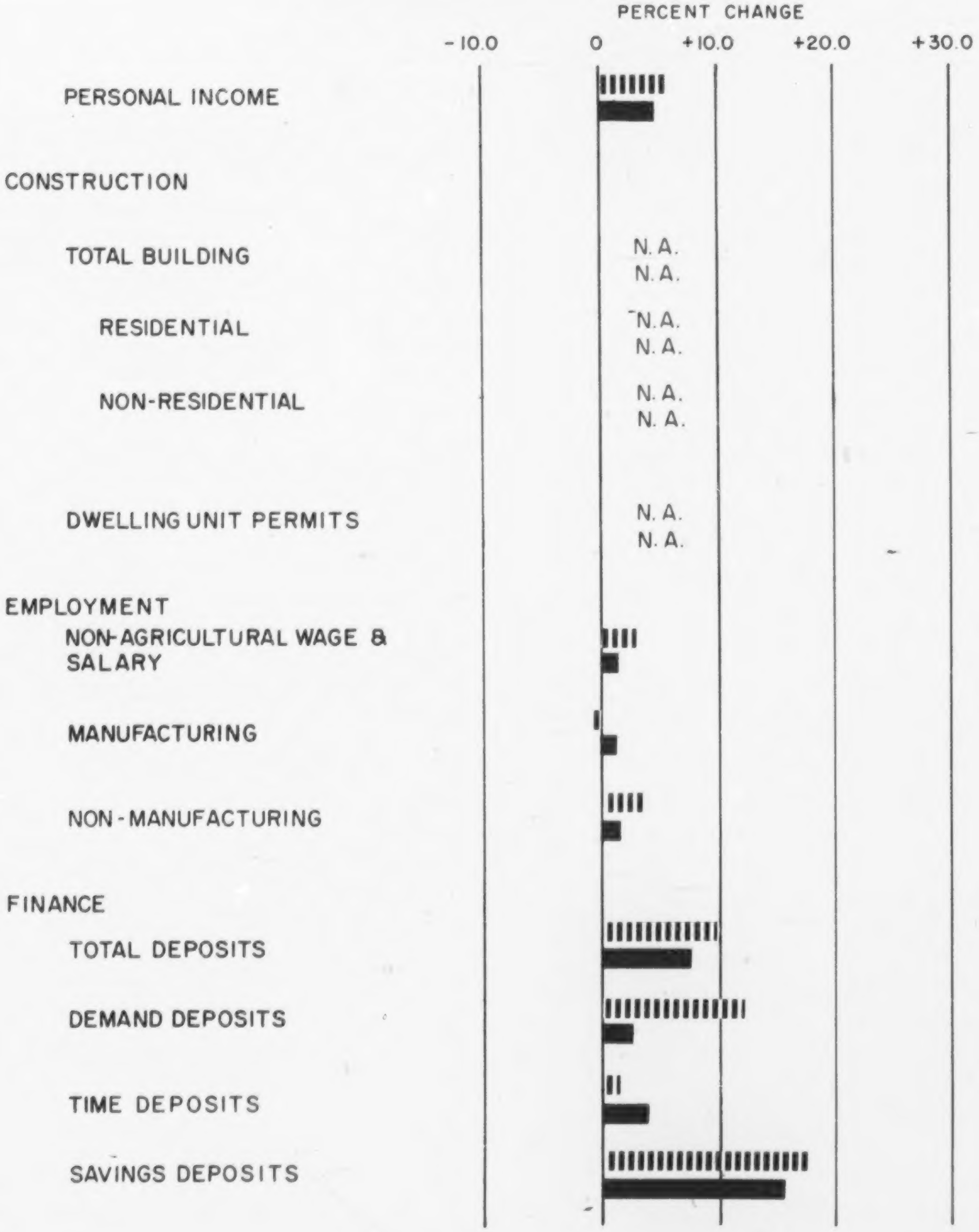
[2] Non-residential data exclude the cost of construction for publicly-owned buildings.

Source: The Federal Reserve Bank of Atlanta from data supplied by the Bureau of Census.

FINANCE JANUARY 1987	United States	Mid-South States	Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Member Banks as of 1/6/87 Percent Change from Comparable Date 1986							
Total Deposits	+11.2	+ 8.3	+16.7	N.A.	+ 1.6	+ 5.1	+11.6
Demand Deposits	+16.7	+ 7.8	+12.2	N.A.	+ 1.0	- 0.8	+16.8
Time Deposits	+ 0.1	+ 2.2	+11.4	N.A.	- 5.4	+ 0.5	+ 5.0
Savings Deposits	+18.3	+14.4	+19.8	N.A.	+11.7	+15.5	+13.6

Source: The Federal Reserve Bank of St. Louis and the Federal Reserve Bank of Atlanta.

THE MID-SOUTH ECONOMY AND U.S. ECONOMY
1986 COMPARED WITH 1985



SOURCE: SURVEY OF CURRENT BUSINESS; FEDERAL RESERVE BANK OF ATLANTA; BUREAU OF ECONOMIC ANALYSIS; STATE EMPLOYMENT SERVICES.

Legend
UNITED STATES ▥
MID-SOUTH ■

ANALYSIS OF ANNUAL CHANGES IN THE MID-SOUTH ECONOMY

In December 1986, the U.S. economy had completed four years of continuous economic expansion, which was the third time since 1945 that this had occurred. However, during 1986 the economy experienced the classic symptoms of a "maturing" expansion. These symptoms are characterized by the slow, somewhat erratic, and unbalanced growth within the economy—both geographically and among industries. Consumer sentiment turned negative during the last half of 1986, and despite the forecast of a turnaround, the nation's trade deficit continued to hit record levels.

The nation's Gross National Product (GNP) grew 2.1 percent from fourth quarter 1985 to fourth quarter 1986, making 1986 the slowest-growth year since the expansion began. Moreover, the growth pattern was noticeably erratic. During the fourth quarter of 1985, GNP annualized growth was almost flat, up only 0.7 percent. In the first quarter of 1986, the rate climbed to 3.8 percent and then slowed in the second quarter to 0.6 percent. The third quarter registered another annualized increase of 2.9 percent and then slowed once again to 1.7 percent in the fourth quarter. While this seesaw pattern produced modest growth for the year, the economy came close to registering a zero growth quarter. A recession is generally defined as two quarters of negative growth.

The consumer's positive sentiment index declined throughout 1986, ending the year at 89.1 compared to a 93.9 reading for December 1985. Real retail sales climbed 8.1 percent above the 1985 level, but the rate of increase peaked during September. Additionally, the personal savings rate fell during the second half of 1986 to 3.9 percent of disposable personal income. The savings rate for 1985 was 5.1 percent. The business sector was not immune to the sluggish growth. Industrial production and capacity utilization, (general measures of the nation's total output), remained unchanged from their levels of a year ago. After a rise at an annual rate of 4.3 percent during the first quarter, worker productivity began a downward spiral. Three successive quarters of decline produced an overall increase of only 0.7 percent for 1986. Corporate profits registered mixed results with an overall increase of 3.8 percent. This increase was mitigated by nonfinancial corporations recording a 4.3 percent decline in profits compared to a 38.8 percent gain for financial corporations.

The bright spots for the U.S. economy continue to be lower inflation and lower interest rates. The inflation rate, as measured by the Consumer Price Index, was actually negative during the first half of 1986, marking the first time since 1949 that the economy experienced a quarter of declining consumer prices. During the second half, consumer prices rose slightly, resulting in an annual increase of 1.1 percent for the year compared to a 3.8 percent rate for 1985. The drop in energy prices contributed significantly to the lower inflation rate. Exclusive of energy prices, the CPI rose 3.8 percent, the same as 1985.

Producer prices, generally considered to be the underlying rate of inflation, actually declined 2.5 percent during 1986—the first yearly decline since 1963. Interest rates also continued their downward trend for most of 1986. The average prime rate dipped 200 basis points from the December 1985 rate of 9.5 percent, and short-term Treasury Bills declined 158 basis points to stand at 5.49 percent in December 1986. Additionally, during 1986 the average rate on new fixed-rate home mortgages dropped below 10.0 percent for the first time since 1978. This drop helped to explain why new housing starts for 1986 rose 3.7 percent—their highest level since 1978.

For the Mid-South states, the geographic and industry disparities of the current expansion were evident. Total personal income in the Mid-South rose 4.5 percent, underperforming the national gain of 5.3 percent. However, excluding the slight drop in income in Louisiana (because of the depressed energy sector), personal income for the Mid-South grew above the national rate at 6.2 percent. Tennessee registered the best gain, up 7.3 percent from a year ago. Sales tax collections were robust for Arkansas and Tennessee with the overall gain across the Mid-South 5.1 percent higher than 1985.

Table 1

1986 PERSONAL INCOME AND PERCENTAGE CHANGE FROM 1985

Area	Personal Income 1986 III (000)	Percent Change 1985: III (000)
U.S.	$3,497,088	+5.3
Mid-South	204,159	+4.5
Alabama	45,036	+4.8
Arkansas	25,979	+6.2
Louisiana	50,471	-0.4
Mississippi	25,118	+6.4
Tennessee	57,555	+7.3

Source: Bureau of Economic Analysis

The Mid-South civilian labor force grew 2.4 percent from last December with Alabama and Mississippi registering the largest gains. The number of persons unemployed across the Mid-South totaled 855,500 in December 1986, pushing the unadjusted aggregate unemployment rate slightly above 10.0 percent, which is the same rate recorded two years ago. The comparable December 1985 figure was 9.2 percent. Arkansas and Tennessee were the only Mid-South states to maintain the status quo with their unemployment rates unchanged from last December. Louisiana and Mississippi recorded substantial increases in unemployment, ending the year with unemployment rates of 13.7 and 11.7 percent, respectively. Mid-South nonagricultural employment grew 1.3 percent from last December, resulting in 85,500 new jobs. Manufacturing employment remained unchanged despite gains in Arkansas and Tennessee, compared to a slight decline nationally. Nonmanufacturing employment, however, registered a modest gain of 1.4 percent compared to a solid gain nationally. The robust gain in nonmanufacturing employment in Tennessee was offset by a substantial decline of 5.7 percent in Louisiana.

Table 2

1986 SALES TAX COLLECTIONS AND PERCENTAGE CHANGE FROM 1985

Area	1986 Collection (Thousands)	Percent Change From 1985
Mid-South States	$4,245,692	+5.1
Alabama	775,706	+6.2
Arkansas	608,531	+1.9
Louisiana	n.a.	n.a.
Mississippi	932,879	+2.2
Tennessee	1,928,574	+7.2

Source: State Departments of Revenue

On the manufacturing side, durable goods production employment declined slightly, while nondurable goods employment recorded an increase of 0.5 percent. In terms of specific industries, however, durable goods employment across the Mid-South recorded gains in furniture, up 3,700 jobs. Lumber products recorded a gain of 2,500 jobs. Tennessee experienced additional employment gains in transportation equipment and nonelectrical machinery, as well as furniture and lumber. In the nondurable category, food and kindred products experienced a gain of 6,300 jobs with Arkansas accounting for half of the increase. The rubber industry registered a gain of 1,700 jobs with more than three-quarters of the gain recorded in Tennessee. Textile employment gained 1,700 jobs primarily in Alabama. Arkansas recorded a gain of 1,400 jobs in the paper and printing sectors. All categories of manufacturing registered declines in Louisiana.

On the nonmanufacturing side, government employment was unchanged, up 0.7 percent from a year ago. Trade employment, both retail and wholesale, accounted for 51,900 new jobs. However, Louisiana registered a decline of 17,700 jobs, bringing the net Mid-South gain to 34,200. Service employment rose 55,200 jobs, but because of losses in Louisiana, the net gain was 49,000. Construction employment across the Mid-South declined 3.4 percent from 1985 levels with Tennessee as the only Mid-South

LABOR DECEMBER 1986	United States	Mid-South States				
		Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Civilian Labor Force	118,049,000	1,886,500	1,067,200	1,958,400	1,153,300	2,319,800
Percent Change Year Ago	+2.0	+ 5.0	+ 2.3	- 0.2	+ 3.8	+2.2
Unemployed	7,461,000	179,600	92,800	268,000	135,100	180,000
Percent Change Year Ago	-3.3	+20.3	+ 1.9	+20.3	+28.9	+1.3
Unemployment Rate						
1986	6.3	9.5	8.7	13.7	11.7	7.8
1985	6.7	8.3	8.7	11.3	9.4	7.8
Non-Agricultural Wage & Salary Employees	101,334,000*	1,453,600	832,500	1,512,200	860,100	1,991,500
Percent Change Year Ago	+2.5	+ 1.0	+ 2.2	- 5.5	+ 0.5	+4.8
Manufacturing Employment	19,190,000*	352,400	214,500	166,300	220,300	491,200
Percent Change Year Ago	-0.5	- 0.5	+ 2.1	- 4.1	- 1.6	+1.3
Non-Manufacturing Employment	82,144,000*	1,101,200	618,000	1,345,900	639,800	1,500,300
Percent Change Year Ago	+3.2	+ 1.4	+ 2.2	- 5.7	+ 1.2	+6.0
Average Weekly Earnings of Production Workers in Manufacturing	$411.16	$364.11	$325.95	$452.40	$308.51	$361.96
Percent Change Year Ago	+1.2	- 0.5	+ 4.6	+ 0.9	+ 0.5	-0.6
Average Weekly Hours of Production Workers in Manufacturing	41.7	41.9	41.0	42.8	40.7	41.7
Percent Change Year Ago	+0.0	- 0.2	+ 1.4	+ 0.2	- 2.2	-2.3
Average Hourly Earnings of Production Workers in Manufacturing	$ 9.86	$ 8.69	$ 7.95	$ 10.57	$ 7.58	$ 8.68
Percent Change Year Ago	+1.2	- 0.2	+ 3.1	+ 0.7	+ 2.7	+1.8

*Seasonally adjusted.

Source: Departments of Employment Security and Survey of Current Business.

state to record a gain, which was 1.9 percent. The Employment and Training Administration announced expenditures for the Job Training Partnership Act's 1987 program year. Mid-South states are slated to receive $329.4 million in job assistance for disadvantaged and displaced workers. This money represents approximately 9.6 percent of the total allocations, which are estimated at $3.4 billion. Currently, the population of the Mid-South states represents 7.7 percent of the U.S. population.

For the Mid-South, 1986 brought minor changes in state labor legislation and a major enlargement in interstate banking trends. Laborwise, Alabama established a farm crisis program, while Louisiana passed a youth employment program. Louisiana also passed stronger legislation restricting the hiring of undocumented workers, but agricultural workers remained exempt. Tennessee passed legislation establishing guidelines for prior notification and refusal rights for persons taking a polygraph test but failed to act on a law to protect video display operators. Arkansas passed legislation requiring employers who make lump sum settlements in liability cases to discount the present value of future payments at 10.0 percent. The former rate was 7.0 percent. With respect to interstate banking trends, 1986 was a watershed year.

Currently, Tennessee has reciprocal banking agreements with seven states. Its agreements with Alabama and Louisiana begin in July 1987. Alabama will have agreements with twelve southeastern states effective July 1987. Louisiana has targeted fourteen southeastern states for agreements effective July 1987; agreements with thirteen other states are scheduled for January 1989, provided those states enact similar reciprocity agreements. Mississippi has delayed agreements with four neighboring states until July 1988 and has targeted thirteen other states for July 1990. Currently, Arkansas has no reciprocal banking agreements.

Elsewhere, attention continues to be focused on the federal and international trade deficits. Some observers believe that both deficits are bottoming out and are preparing for significant reversals. The annual rate of increase in the federal deficit slowed during the last three months of FY 1986 but ended the year at $220.7 billion, which was $8.8 billion higher than FY 1985. For FY 1986, receipts rose 4.8 percent from FY 1985 levels but were partially negated by a 4.6 percent rise in budget outlays. Current budget debates show little indication of reaching the now defunct Gramm-Rudman-Hollings deficit goal of $174 billion for FY 1988. The goal for FY 1989 was projected to be $108 billion. As for the trade deficit, most analysts perceive a turnaround as being the crucial factor if the U.S. economy is to maintain continued economic growth. The trade-weighted value of the U.S. dollar declined 21.5 percent from the 1985 level, leading to the conclusion that export growth would follow. However, while durable goods exports jumped 10.0 percent during 1986, exports of nondurable goods and services fell 1.1 and 0.3 percent, respectively. Imports, on the other hand, continued to register gains with durable goods increasing 13.5 percent and nondurable goods climbing 21.7 percent. The service component of imports remained unchanged from year-ago levels.

There also remains concern about the potential erosion of the economies of the U.S.'s major trading partners. Industrial production figures from October 1985 to October 1986 indicated that Japan, W. Germany, and Canada registered declines, while England remained unchanged. Additionally between 1976 and 1985, the population/employment ratio had fallen in Japan, W. Germany, and England. The U.S. and Canada were the only countries out of the five to record gains in this ratio. Therefore, the federal and international trade deficits, taken together and considering their long lead time for correction, will continue to exert a drag on the U.S. economy for most of 1987.

Finally, another key area that received considerable attention during 1986 was the manufacturing sector. The sluggish performance of industrial production and a fall in capacity utilization provided somewhat mixed signals about the relative strength of the nation's industrial base. Several media articles exploring the problems of "deindustrialization" of the U.S. economy pointed out that foreign competition and structural shifts (that is, the evolution of the economy from manufacturing to services) are slowly eroding the nation's industrial base. However, broader indicators of performance generally do not support this conclusion. In absolute terms, manufacturing employment has managed to regain the jobs lost during the 1980 to 1982 recessionary period, and manufacturing output has remained, on average, at 22.0 percent of GNP since 1973. And, despite the recent slowdown in productivity gains, previous increases have been a major contributor to the improved performance of the industrial sector. Since 1982, productivity has increased at an annual rate of 1.4 percent.

FINANCE DECEMBER 1986	United States	Mid-South States	Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Member Banks as of 12/3/86 Percent Change from Comparable Date 1985							
Total Deposits	+ 9.9	+ 7.2	+13.9	N.A.	+ 2.5	+ 4.1	+ 9.4
Demand Deposits	+11.9	+ 2.1	+ 7.2	N.A.	- 3.2	+ 8.8	+ 8.8
Time Deposits	+ 1.2	+ 3.4	+ 7.1	N.A.	- 3.4	+ 1.4	+ 5.1
Savings Deposits	+17.6	+15.1	+17.4	N.A.	+15.3	+14.5	+13.6

Source: The Federal Reserve Bank of St. Louis and the Federal Reserve Bank of Atlanta.

SAVINGS AND LOAN ACTIVITY	Alabama	Arkansas	Louisiana	Mississippi	Tennessee[1]
Mortgage Loans Made (millions)					
Percent Change Year Ago	CHANGE IN DATA REPORTING FORMAT. NO COMPARABLE DATA AVAILABLE FOR THIS REPORT.				
Percent Change Year-to-Date					

[1] Figures are for total loans made.

Source: Federal Home Loan Banks of Little Rock, Cincinnati, and Atlanta.

erated by an increase in single-family unit permits of 14.3 percent over the 1985 level.

Total starts for 1986 were down 9.3 percent from the 1985 level; however, single-family starts of 4,361 units in 1986 represented growth of 87.1 percent over last year's 2,331 single-family starts. Multi-family starts registered a decline of 2,655 dwelling units, resulting in the overall decline of 1986 starts.

Single-family units accounted for 72.0 percent of total Shelby County housing starts in 1986. The growth in single-family building activity can be attributed to sharp declines in mortgage lending rates as compared to 1985 levels.

Sales of new single-family homes increased 10.2 percent in 1986 with a corresponding average sales price increase of 10.9 percent relative to the 1985 level. Sales of new condominiums during the same period declined 80.0 percent, while sales prices for new condominiums logged a 34.7 percent increase over 1985 levels. The large increase in average sales prices of new condominiums is attributable to increased building and to increased sales of units in the $100,000-plus price range.

The number of real estate transfers increased 9.7 percent in 1986 compared to the 1985 level. In addition, the dollar amount of the transfers was up 8.3 percent over the same period. Mortgage foreclosures for 1986 were 1,669, repre-senting an increase of 13.4 percent when compared to 1985 foreclosures.

Housing permits for the unincorporated portions of Shelby County (excluding Memphis and Germantown) totaled 169 units for the fourth quarter of 1986.

All the permits were for single-family dwelling units. These 169 units represented a 37.4 percent increase over the fourth quarter of 1985. Collierville and Bartlett accounted for 162 of the permits issued.

The inventory of both completed and uncompleted homes in Shelby County reflected an increase during the fourth quarter of 1986 when compared to the same quarter in 1985. The increase consisted of a 44.4 percent rise in the total number of uncompleted houses and a 2.9 percent increase in the number of completed houses now available for sale. These statistics reflect an active and a growing market for new single-family housing in Shelby County.

The average selling price of all units sold in Shelby County during 1986 increased 11.48 percent over the average price reported for 1985. Total sales increased 9.7 percent, and total dollar transactions increased 22.6 percent over the same period. Increases were caused by continued low mortgage rates, which are expected to continue well into 1987.

TENNESSEE ECONOMY

The Tennessee economy continues on a robust path of expansion. The growth in personal income outpaced the national gain, and the unemployment rate declined 1.1 percentage points to 8.1 percent for January 1987. Total building activity rose 2.5 percent due to a solid gain in the single-family housing sector, compared to a 6.6 percent decline nationally. The number of permits for dwelling units fell 7.6 percent, primarily the result of a decline in multi-family units.

The dollar value of office and industrial building declined substantially, but stores, hospitals, and schools registered moderate gains. On the negative side, sales tax collections were 10.0 percent lower than last January, and eight out of ten counties across the state continued to experience unemployment rates above 9.0 percent.

Tennessee's nonagricultural employment was 4.9 percent higher than last January, compared to the nation's gain of 2.5 percent. Manufacturing employment rose 1.4 percent, while nonmanufacturing employment climbed 6.1 percent. Durable goods manufacturing recorded a gain of 5,200 jobs, primarily in the lumber, furniture, fabricated metals, and transportation equipment sectors. Nondurable goods production gained 1,400 jobs, primarily in food, textiles, and the rubber/plastics industries.

On the nonmanufacturing side, construction employment gained 8,300 jobs, while government employment climbed 13,800 jobs. The majority of government jobs were created at the local level. Trade employment increased 25,700 jobs with the major gains recorded in the eating and drinking place category. Service employment climbed 31,500 jobs from a year ago with the major gains concentrated in the health services category.

The number of persons unemployed across the state declined 10.4 percent from last January, resulting in Tennessee registering the lowest unemployment rate among the Mid-South states. However, Knoxville, Nashville, and the Tri-Cities area experienced increases in their unemployment rates, while the rates in Chattanooga and

Table 1

SHELBY COUNTY HOUSING INDICATORS, FOURTH QUARTER, 1985-1986

Items	Fourth Quarter 1986	Fourth Quarter 1985	Year-to-Date 1986	Year-to-Date 1985	Percent Change Year-to-Date 1986 From Year-to-Date 1985
NEW RESIDENTIAL UNITS					
Total Permits Issued[1]	1,589	2,057	6,287	8,401	- 25.2
Single-Family	948	864	3,994	3,494	+ 14.3
Duplex	10	16	24	74	- 67.6
Apartments[2]	631	1,177	2,269	4,833	- 53.1
Total Starts[1]	2,173	1,225	6,032	6,657	- 9.3
Single-Family	1,045	426	4,361	2,331	+ 87.1
Duplex	14	28	26	38	- 31.1
Apartments[2]	1,114	771	1,645	4,288	- 61.6
Sales Closed					
Single-Family (New)	803	763	3,193	2,621	+ 10.2
Condominium	24	99	132	659	- 80.0
Average Sales Price					
Single-Family (New)	$108,937	$ 95,661	$104,856	$ 94,528	+ 10.9
Condominium	$ 79,799	$ 54,677	$ 71,244	$ 52,886	+ 34.7
REAL ESTATE TRANSFERS					
Number	6,131	5,520	23,177	21,129	+ 9.7
Amount (000)	$542,479	$444,969	$1,974,746	$1,822,729	+ 8.3
NUMBER OF MORTGAGE FORECLOSURES	446	387	1,669	1,472	+ 13.4

[1] Expressed in number of dwelling units.

[2] Apartments include condominiums and townhouses.

Table 2

RESIDENTIAL BUILDING PERMITS AND STARTS, INCORPORATED AREAS (EXCLUDING MEMPHIS AND GERMANTOWN)[1] IN SHELBY COUNTY, FOURTH QUARTER, 1986

Area	Permits Single-Family	Permits Duplex[2]	Permits Apartments[2]	Starts Single-Family	Starts Duplex[2]	Starts Apartments[2]
Bartlett	80	—	--	80	—	--
Arlington	0	—	--	0	—	--
Millington	1	—	--	1	—	--
Collierville	82	—	--	82	—	--
Lakeland	6	—	--	6	—	--
Total	169	--	--	169	—	--

[1] Due to local government consolidation between Memphis and Shelby County, residential permits and starts cannot be separately identified for the municipalities of Memphis and Germantown. The statistical data for these two municipalities are included in the data for unincorporated Shelby County.

[2] Number of dwelling units.

Table 3

INVENTORY OF UNSOLD SINGLE-FAMILY HOUSING UNDER CONSTRUCTION AND NEW HOUSING, SHELBY COUNTY, TENNESSEE, FOURTH QUARTER 1986

	Summary of Uncompleted Houses Days Since First Inspection						Summary of Completed Houses Days Since Final Inspection					
Square Feet	<30	30-60	60-90	90-180	>180	Total	<30	30-60	60-90	90-180	>180	Total
Under 1,000	7	4	4	16	8	39	3	5	13	--	57	78
1,000 - 1,200	10	18	11	51	26	116	18	11	2	1	57	89
1,200 - 1,400	30	23	35	97	51	236	18	28	15	4	104	169
1,400 - 1,600	31	48	63	130	29	301	15	16	13	1	134	179
1,600 - 1,800	27	42	51	137	51	308	13	11	3	3	71	101
1,800 - 2,000	29	31	55	126	72	313	14	18	15	1	74	122
2,000 - 2,200	19	21	36	103	96	275	26	16	14	2	73	131
2,200 - 2,400	20	13	31	107	86	257	21	14	15	1	64	115
2,400 - 2,600	23	35	35	106	116	315	34	14	14	1	77	140
2,600 - 2,800	16	22	20	98	58	214	14	14	8	1	45	82
2,800 - 3,000	7	24	21	68	37	157	10	9	8	--	32	59
3,000 - 3,200	5	12	18	44	35	114	5	10	9	--	22	46
3,200 - 3,400	8	8	9	34	20	79	7	3	3	--	15	28
3,400 - 3,600	9	2	8	29	9	57	6	4	4	2	22	38
3,600 - 3,800	6	4	9	28	12	59	2	2	--	--	14	18
3,800 - 4,000	4	2	9	21	15	51	5	2	1	--	16	24
Over 4,000	12	18	22	74	51	177	4	4	3	--	62	73
Total	263	327	437	1,269	772	3,068	215	181	140	17	939	1,492

Source: K. William Chandler, Housing Inventory.

Table 4

SALES OF EXISTING AND NEW SINGLE-FAMILY RESIDENTIAL UNITS AND DUPLEXES, MEMPHIS AND SHELBY COUNTY, TENNESSEE, FOURTH QUARTER, 1968-1986, AND ANNUAL SUMMARY, 1968-1986

	Total Dollar Volume All Price Ranges (Millions)		Number of Units Sold		Average Sale Prices All Units	
Year	4th Quarter	Annual	4th Quarter	Annual	4th Quarter	Annual
1968	$ 46.7	$ 187.8	2,891	11,517	$16,165	$16,306
1969	45.4	204.8	2,756	11,851	16,473	17,281
1970	50.7	201.1	2,924	11,264	17,339	17,853
1971	59.4	273.1	3,607	13,727	19,240	19,895
1972	N/A	N/A	N/A	N/A	N/A	N/A
1973	87.0	396.3	3,206	15,278	27,137	25,939
1974	72.4	395.0	2,616	13,789	27,676	28,646
1975	101.2	401.6	3,257	12,942	31,072	31,031
1976	125.2	493.7	3,776	14,985	33,157	32,946
1977	52.8	537.5	1,265	14,700	41,739	36,565
1978	188.6	739.4	4,511	18,359	41,809	40,274
1979	203.2	819.3	4,475	18,371	45,408	44,597
1980	205.8	739.7	4,185	15,248	49,175	48,511
1981	119.8	605.1	2,258	11,455	53,056	52,824
1982	131.6	518.7	2,601	9,590	50,596	54,088
1983	199.7	791.1	3,405	13,684	58,649	57,810
1984	205.0	914.8	3,538	15,074	57,942	60,689
1985	290.1	1,091.7	4,521	17,123	64,178	63,488
1986	363.0	1,339.4	4,981	18,789	72,881	70,739

Source: K. William Chandler, Residential Sales Report.

Memphis remained unchanged. Manufacturing employment registered a solid gain in Memphis with slight gains recorded in Nashville and Chattanooga. Knoxville and the Tri-Cities area experienced declines in manufacturing jobs.

Elsewhere in economic development news, Tennessee's textile industry got a boost with corporate expansions having been announced by Van Heusen and Dunlop Industries in Chattanooga and the Southeast Apparel Finishing Co., in the Tri-Cities area. Hazardous waste industries are being attracted to the Knoxville area where the IT Corporation has announced plans for a $40 million plant. Also, International Technology and the Battete Co., announced plans to locate operations in that area.

Transportation and distribution businesses are coming to Memphis as Snyder Truck Lines announced plans to relocate there and Mrs. Smith, a food processing company, announced intentions to move its corporate headquarters from Pennsylvania. Nashville's automotive industry added to its list a $25 million Fiat plant that will produce aluminum cylinder heads. Chicago Pneumatic Tools announced plans to relocate their corporate headquarters there, also.

The outlook for Tennessee agriculture and agribusinesses is optimistic due to the diversification of crops and recent employment gains in the food and lumber manufacturing industries. Food processing gained 1,500 jobs from last January, and lumber products manufacturing climbed 2,000 jobs. A recent survey by the Tennessee Agriculture Department revealed that while the number of active lumber mills declined slightly from a year ago, the total amount of board feet increased 13.0 percent. There are approximately 591 active mills in Tennessee producing some 606 million board feet annually. White, Montgomery, and Macon counties, located in northeast middle Tennessee, are the top lumber-producing areas in the state.

Tennessee's farm price index remained unchanged from year-ago levels with crop prices slightly lower and livestock prices advancing 2.1 percent. Based on 1986 rankings, Tennessee ranked third in tobacco, fourth in tomatoes and seventh in cotton. In terms of livestock production, Tennessee ranked thirteenth in cattle and thirteenth in milk cows.

TENNESSEE CORPORATE NEWS

Insituform (Memphis). The company announced that it has expanded the territory of five licensees, primarily in the West. As a result, the company's pipeline reconstruction process is licensed throughout the entire U.S. with the exception of two counties in Texas. (NASDAQ: INSUA).

United Cities Gas (Brentwood). UCG announced its tenth and largest acquisition, as well as its first venture into the propane gas business in Georgia. The company acquired Lyle Propane of Cairo. The Lyle company, with annual sales of 4.0 million gallons, currently has 4,000 customers in southwest Georgia and northern Florida. (NASDAQ: UCIT)

Southern Hospitality Corp. (Nashville). The intended merger between Southern, an operator of fifty-four Wendy's restaurants, and the SunGroup of Nashville will not be completed as previously announced. The SunGroup operates ten radio stations in the area. Elsewhere, the Southern Hospitality company was the recipient of the Founder's Award by Wendy's International. The award is the highest honor awarded to a Wendy's franchisee.

Seven Oaks International (Memphis). The coupon clearing house announced the formation of Seven Oaks Direct to offer a full line of telemarketing services for both commercial and residential markets. Direct's services include supporting direct mail campaigns with outbound calls, selling to inbound callers, and providing specialized information in handling custmer service calls. (NASDAQ: OPON).

LEADERSHIP: THE ORGANIZATIONAL IMPERATIVE

*Russ Holloman and Barbara Coleman**

The word "imperative," which of course means "urgent and necessary," is being used today in a different way. It now seems that the words "or else" have been added to its meaning. The implication in this new usage suggests that those who fail to perform imperative tasks will encounter undesirable consequences.

Economists, for example, are talking and writing about what they call the "economic imperative." What they are referring to is the necessity of making our economic system perform the way it was intended to perform. Economists cite the need for balance in our import-export trade, for a lowering of interest rates, and for a reduction of the national debt. "If these aspects of our economy are not improved," they contend, "people will demand remedial changes in the system."

From many sources and directions, we also are hearing and reading about an "organizational imperative." Simply stated, it declares that it is time for us to stop attacking and damning our organizations and instead start helping them to perform better the job they were created to do—providing us with the goods and services we need and desire. If we don't do this, it is argued, organizations from other countries will do it for us. "Other nations already supply our small automobiles, our watches, our cameras, our electronic and video equipment, and are making inroads in other areas. Must we through indifference and neglect let these other nations also run our hospitals, banks, and universities?" this imperative asks.

Clearly, something has gone wrong. Our long-held belief in the superiority and the invincibility of American business and industrial organizations has been challenged seriously. Problems of declining productivity and worker performance admittedly have contributed to a loss of our long-standing competitive advantage. Characteristically, questions about why this decline has happened have begun to be asked. In search for an explanation, numerous studies have compared the performance of American companies with progress made by other nations, particularly Japan (Ouchi, 1981; Hatvany and Pucki, 1981; and Hayes and Abernathy, 1980). These studies evaluated a number of factors—economic and noneconomic, human and nonhuman—for its effect on American productivity. The factor that explained more of the variation in worker performance and productivity than any other was the superiority of management practices in Japanese organizations, and it was in the area of human resources management that this superiority was most evident.

The answer to America's organizational imperative does not lie in adoption of Japanese management practices, nor does the answer exclusively depend upon increased use of the tools of scientific management. While there are no magic formulas or easy fixes, there is a growing recognition that the answer lies in securing the commitment of people and utilizing their creative potentials in improving and maintaining organizational effectiveness. The answer lies in relearning an old lesson from a book that was written in America.

Organizations Are People

Organizations typically begin as ideas in the minds of people. They are created when the work involved in providing some socially desirable good or service is too great for one person alone to do. In order to produce these goods and services, which we will refer to as output, there are certain prerequisite inputs that must be available. Included in these inputs are money, equipment, technology, energy, and most importantly, people. People are important because they are the one input that cannot be duplicated by a competing organization. A competitor can use the same technology to provide a similar good or service in the same market, but it cannot duplicate the people of another organization. People are a special, unique resource in any organization. Because of its variability and adaptability, the human resource provides the greatest promise of improved organizational effectiveness and productivity; it is the one organizational asset that has a learning ability and productive capacity that is potentially far greater than its cost. Unlike other nonhuman resources, people require special understanding, utilization, and maintenance.

Because they are made up of more than one person, all organizations must confront the problem of how to recruit

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**Mr. Holloman is the Maxwell Professor of Organization Behavior in the School of Business Administration, Augusta College, Augusta, Georgia. Ms. Coleman is Coordinator of Graduate Studies in the School of Business Administration* and retain a sufficient number of persons with the appropriate skills to perform that organization's essential jobs. Most organizations seek to solve this problem by offering payments of wages and benefits to persons in exchange for their skills and productivity. These organizations have been described by Etzioni (1961) as remunerative (i.e., they pay people to join and produce for them). He also suggests that the resulting relationship between the remunerative organization and its members tends to be calculative in nature. It is calculative because we have no precise way of determining, for example, what an hour of human labor is worth.

Because we believe our labor is worth whatever we can get for it, the selling and the buying of it are constrained by the realities of the market. Remunerative organizations will hire, and persons will join when each feels that what they are getting is equal to or greater than what they are giving. Because of this calculative relationship, remunerative organizations seek to get as much as they can for as little money as possible. Conversely, employees want as much money as they can get for as little work as is necessary. This relationship and the attitudes shown by the organization and its employees may at first seem repugnant to many people. Despite these feelings, however, it is an inevitable aspect of the employment relationship in remunerative organizations. One unfortunate consequence of this relationship is the tendency for organizations to view labor as a cost of production, which is how other expenses associated with the production process are viewed. And as with all other expenses, minimizing the cost of labor is one way to improve the financial success of the organization. This assumption of relating to employees as production costs can cause serious, undesirable consequences for remunerative organizations.

Motivational Basis of Employee Involvement

Generous offers of money will attract and influence people to join an organization. Explicit in this employment process are a number of expectations that organizations have of employees (Katz & Kahn, 1978). First, it is expected that employees will meet or exceed the organization's standards for quantity and quality of work. It also is expected that employees will spend the required time on the job and that they will work cooperatively with other employees. These expectations are normally thought of as legal requirements that employees must meet as a condition of continued employment. Managers have formal authority to direct the work activities of subordinates, and there is an enforceable expectation that subordinates will comply.

As important as they are, these required behaviors provide only a base for successful organization performance. They are necessary but insufficient inputs for organizations to remain adaptive and successful in an ever-changing environment. A second and often neglected set of critical behaviors includes activities not specified by role prescriptions. This second set is more innovative, spontaneous, and caring. Since they fall outside the legal work contract, they are above and beyond the basic required behavior. Examples in the second category include employee concern for the organization's property and reputation, offering creative suggestions for organizational improvement, self-educative activities aimed toward better job performance and assumption of increased responsibilities, and creation of a favorable external environment for the organization.

The remunerative organization depends upon money to attract qualified people to join and perform the four required behaviors. If the organization's offers are perceived to be adequate compared to what the individuals are expected to contribute, then the individuals can be influenced to join. And if they desire to stay, they will perform at a level that does not endanger their continued membership in the organization. If the organization views the employment process simply as one of exchanging money for employee compliance with these standards, the calculative attitude will pervade the relationship between the organization and its employees. Too frequently, management's efforts to gain increased productivity follow the same remunerative principle. "If you want to produce more, you have to pay them more" is the argument. Unfortunately, incentive systems of payment do not have a good track record as a means of increasing productivity. When financial incentives fail, management tends to replace the carrot with the stick by threatening to punish employees if they fail to produce more.

Promises of a bonus, if the bonus is valued by employees, are capable of producing a temporary improvement in job performance. Threats of punishment, if feared by employees, also will produce a temporary improvement. But both of these approaches are manipulative in nature and neither of them inspires employees to give their best performance. Only minimal improvement is given by the employees to gain the desired reward or avoid the feared punishment. As soon as the crisis is over, or the carrot and stick lose their effectiveness, subordinates tend to revert to the standard of what they perceive as a fair day's work. Subordinates give their best performance only when they are intrinsically motivated to give it.

Realizing their need for these innovative behaviors, remunerative organizations attempt to secure them the same way they secure the required behaviors. Unfortunately, their efforts produce only continued frustration and reinforcement of the calculative-adversarial relationship between the organization and its members. Remunerative organizations can secure these innovative behaviors only through changing the basis of involvement of people in the organization. The required change should shift from the calculative pattern of involvement to that normally found in voluntary organizations. People participate in voluntary organizations because they want to—not because they have to. The basis of their involvement is moral—not financial. It is a moral involvement because they believe the purpose and goals of the voluntary organization are socially and personally beneficial. Fortunately, this moral involvement is not an exclusive property of voluntary organizations; it can be developed by traditionally remunerative organizations.

The Organization's Assumptions About People

To the extent that organizations succeed in recruiting members, a second, closely-related, and interdependent problem is encountered. It is the question of what kind and how much coordination or supervision is required to direct the activities of these people toward organizational goals. This question cannot be answered without first making some assumptions, either explicitly or implicitly, about the people involved. When we examine the assumptions organizations typically make about human nature, we find them positioned along a continuum. These assumptions reflect the extent to which people are perceived as being altruistic or selfish, trustworthy or untrustworthy, independent and self-reliant or dependent and conforming, and whether they are capable of rational, organizationally-oriented behavior versus being controlled by nonrational, self-serving needs. After looking at the ways organizations approach this problem, McGregor (1960) integrated the more uncomplimentary aspects of these assumptions into what he labeled Theory X. In part, Theory X views people as being lazy, therefore needing external motivation; as being irrational, therefore, needing external discipline and control; and having goals that are incompatible with organizations goals, therefore needing close supervision to ensure they conform to organizational expectations. These assumptions imply and are consistent with a totally remunerative approach toward utilization of the human resource. The organization is buying (giving money wages and other benefits for) the contributions and obedience of employees to work toward organizational goals. Perceiving people in terms of Theory X leads to the use of coercive controls with the behavior of employees. These controls cause employees to withdraw their commitment to the organization and to resist even the rational actions of management.

The more positive, complimentary dimensions of these assumptions were grouped by McGregor into a separate Theory Y. In Theory Y terms, people accept—even seek—responsibility and are capable of self-direction and self-control when working toward objectives to which they are committed. Organizations adopting the assumptions of Theory Y will structure the work situation in ways that elicit and reinforce the expected employee behavior. As employees shift the basis of their motivation from "having to" to "wanting to," the overall pattern of their involvement in the organization shifts from calculative-adversarial relationships to a pattern of moral involvement. This shift releases the potential in subordinates for increased commitment to organizational goals and creative efforts in pursuit of these goals (Schein, 1980). It is the responsibility of management to secure this commitment, to provide this motivation.

The Organization's Culture and Leadership

Every organization has a fundamental character or spirit—often called culture—that is revealed in a prevailing system of values, beliefs about the importance and nature of people, and norms of authority and influence (Hall, 1980). In more operational language, an organization's culture can be described as the way "things are done around here." Sometimes this culture is fragmented and difficult to discern; other times it is very apparent and cohesive. However ill-defined an organization's culture may be, it always reflects on and is an outgrowth of that organization's policies, day-to-day management practices, authority and influence processes, and systems of rewards and punishments.

One of the more pervasive dimensions of this culture is whether the organization basically subscribes to the belief systems of Theory X or Theory Y. This aspect of its culture plays a central part in determining how managers and supervisors behave toward employees. It is this day-to-day behavior that provides employees the basis for their perceptions of the organization and its intentions toward them. It is on the basis of these perceptions that employees make judgements about what is appropriate behavior toward the organization. This mutual perceiving and acting out process provides the ingredients for the amount and kind of organization-employee integration and cooperative relationships.

How does an organization determine how "things will be done around here?" In their roles, managers have the capacity and the opportunity to become the mind and the heart of an organization, i.e., to determine what its culture will be. An organization has no thought or decision-making properties of its own; activity in these areas necessarily is performed by individual managers. Following the principle of hierarchical authority, the ultimate responsibility for an organization's culture rests with the chief executive. The decisions of the executive, for example, are organizational decisions, the executive's values are organizational values, and the executive's behavior is organizational behavior. Although executives, even at the top level, are hedged by constraints of all types, their role still permits them considerable freedom of action. While on the one hand the organization's culture can inhibit executives, they can on the other hand influence the content and scope of that culture. Thus the decisions and actions of executives can provide interpretations of the "way things are done around here" and can provide insights for the need for change. A central aspect of this managerial dilemma—managing stability and change—is how to respond to the organizational imperative for changes in the work environment that would lead to increased organizational productivity and effectiveness.

It is a common notion that persons who are appointed as managers in organizations automatically display leadership by virtue of their positions. Business managers and military commanders, for example, traditionally have been referred to as leaders for no other reason than their position or title. Not only are they described as leaders, it also is assumed that they always exercise leadership in directing their subordinates. A major shortcoming of this practice is its failure to distinguish the position of headship from the process of leadership. The term leadership must be restricted to those situations in which the relationship between leaders and followers is voluntarily accepted by members of the organization. Appointed heads may direct and control their subordinates, but unless those in subordinate roles have some choice as to why they follow—or whether they follow—there is no leadership. Leadership results when appointed heads are able to influence the behavior of subordinates without any apparent use of authority or coercive controls.

If anything significant in this area is to be accomplished, organizational managers must understand their organization's culture and the processes through which actions are carried out. Too often, managers are motivated to change the basis of employee involvement in their organizations but lack understanding of or patience with the processes by which ideas are translated into reality. The leadership responsibility of chief executives has two aspects. First, from the micro view, chief executives must develop relationships with their immediate subordinates that approximate the relationship between elected heads and their immediate subordinates. Whether subordinates view appointed heads as the "head" or as a "leader" depends on the relationship that develops between them. Secondly, from the viewpoint of the total organization, the executive must cope with the big question of providing a work environment and providing the appropriate reinforcement contingencies so that employees will internalize the purpose and goals of the organization and commit themselves to its accomplishment. In this last regard, executives must see themselves as responsible for the leadership culture of the organization and use the administrative machinery of the organization to develop it and to implement it.

A Concluding Thought

Since organizational effectiveness is highly dependent upon the ability of managers to motivate subordinates toward high productivity, the need for managers to function as leaders is increasingly being emphasized. The problem facing the manager is one of finding ways to exert more influence upon subordinates than their formal authority alone permits. Managers who want to be accepted as leaders must create and maintain relationships with subordinates that approximate those found within informal, voluntary groups. They must be able to perceive the needs and expectations of all employees and help them satisfy those needs. Managers must do this even though they are, at the same time, accountable to higher management for the achievement of specified goals. To succeed in both directions, their relationships with subordinates must shift from a basis of authoritarian discipline and control to one of trust, understanding, and motivation. It is a shift from headship to leadership. Leadership involves instilling in followers the desire, interest, and commitment to behave in ways suggested by the leader—it does not mean coddling or soft supervision. Building in subordinates the desire to accomplish the objectives of the organization is the essence of leadership.

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THE MEANING OF PRODUCTIVITY

David H. Ciscel and Laura S. Lewis[*]

Productivity is the key to modern industrial strength. A country whose workers are productive tends to prosper. One whose workers are unproductive will not.

Productivity is the basic measure of economic efficiency. One of the primary tasks of modern economic management is to improve the efficiency of an economy's productive apparatus.

Productivity is usually measured as the output per worker per hour. Output can be measured in units of physical output or in sales dollars, but both measures pose problems. Physical output varies in standards, qualities, and features—even within one industry's product. Sales value can be compared across industries, but it includes changes in prices and inflationary measures. To solve both of these problems, an index of output values adjusted for inflation can be used.

When measuring input, the standard always has been based on an hour of work by an employee. It is recognized that the skill or education of the worker and quality of the management organization can affect that input dramatically.

In spite of the problems with the measurement of productivity, output per worker remains the standard by which we measure the economic efficiency of U.S. industry.

Importance Of Productivity

Why is productivity important? First, productivity advancement results in efficiency—the saving of scarce resources per unit of output. In addition, productivity advancement allows the economy to produce more with the same resources and produce the same output with less effort.

Second, productivity advancement is a primary determinant to rising real per capita incomes in the United States. Economic growth is the result of productivity improvements. During this century, productivity-driven growth has accumulated at about 2.0 percent per year, allowing for a doubling of the standard of living every thirty years. A rising standard of living allows for the following: greater consumer wealth; healthier, better housed population; and greater resources for community expenditures.

Third, international differences in productivity advancement result in shifting employment, wage, and industrial patterns among industrial countries. Productivity changes in the United States affect not only the competitiveness of domestic products, but also the competitiveness of United States' exports. Overall, productivity advancement results in an increase in domestic per capital income through expanded exports, the survival of domestic industry against foreign competition, and greater choice of employment.

Employment Trends

According to the Bureau of Labor Statistics, total employment will reach almost 123 million in 1995, a gain of nearly 16 million jobs from 1984. Almost nine out of every ten of these new jobs will be added in a service-producing industry—transportation, communications, public utilities, trade, finance, insurance, real estate, miscellaneous services, and government.

Table 1 shows the fastest growing industries in terms of employment. Memphis's industrial base includes many of these industries. Employment is increasing in these

Table 1
FASTEST GROWING INDUSTRIES
IN TERMS OF EMPLOYMENT GROWTH
1984-1995
(in percent)

Industry	Avg. Annual Rate of Change
Medical Services	4.3
Business Services	4.2
Computers & Peripheral Equipment	3.7
Materials Handling Equipment	3.7
Transportation Services	3.5
Professional Services	3.5
Scientific & Controlling Instruments	2.9
Medical Instruments & Supplies	2.8
Physician & Dental Services	2.6
Plastic Products	2.5

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industries at the rate of 2.5 to 4.3 percent a year. This increase means that employment will double every fifteen to twenty years for the fastest growing segments of our economy.

From 1959 to 1984, the United States economy added nearly 40 million jobs, half of those were added during the 1969 to 1979 period. Service-producing industries have absorbed ever increasing proportions of this rapidly expanded work force. Goods-producing industries, on the other hand, have declined in importance as employment sources, although these industries still contribute a sizable share to the GNP. Manufacturing accounted for 25.1 percent of all jobs in 1959 and only 18.5 percent of all jobs by 1984.

Service

An important economic sector in the current employment trend is the business-, personal-, and medical-services industries. This sector in the economy will account for almost half of the 16 million new jobs. The business-services industry is projected to lead all others in numbers of new jobs and to rank second in terms of rate of employment growth. This is the case despite the relatively small size of this industry compared to some others, such as retail trade, eating and drinking places, wholesale trade, and new construction. Each of these other industries had more employment than business services in 1984—in fact, retail trade was almost three times as large—but these will add fewer jobs through 1995 than will business services.

BUSINESS SERVICES: Growth will increase in the business-services industry because of several factors. First, many new types of services now have become integral parts of modern business operations. The computer and other technological advances have led to a demand for programming and software services and consulting and management services. Second, firms have found it more efficient to hire outside agents for many of these services rather than rely on an in-house staff.

PROFESSIONAL SERVICES: The professional-services industry also ranks among the top six in terms of rate of employment growth and number of new jobs added between 1984 and 1995. (See Table 1). Included in this industry are legal services, engineering services, and accounting, auditing, and bookkeeping services.

MEDICAL SERVICES: Medical care is another industry that has been important in contributing to employment growth. Jobs in doctors' and dentists' offices rose by more than 1.0 million between 1959 and 1984. Hospitals added more than 2.0 million new jobs, while other medical services (such as nursing homes, outpatient facilities, and rehabilitation centers) increased employment by 1.5 million. In terms of rates of job growth, other medical services were first among the three health care industries and, in fact, led all other industries in the economy between 1959 and 1984. While total private employment over this period was increasing at an annual pace of 1.7 percent, other medical services posted a 7.3 percent growth rate; hospitals, 4.6 percent; and doctors' and dentists' offices, 3.8 percent. Hospital employment is projected to grow more slowly through 1995. Future growth rates are considerably slower than historical trends, although other medical services still rank number one among the industries in the economy in terms of projected growth.

TRADE: In addition to the business-services industry, retail trade, eating and drinking establishments, and wholesale trade rank among the top four industries in terms of numbers of new jobs to be added between 1984 and 1995. Employment in these trade industries is projected to grow by 4 million to more than 28 million by 1995; however, the rate of job growth at 1.4 percent a year is slightly faster than that for the economy as a whole.

MANUFACTURING: Although these and other findings indicate a shift from a manufacturing to a service economy, this shift is not representative of a declining industrial base or "deindustrialization." Employment in the manufacturing sector in absolute terms has not declined appreciably over the last two decades (except cyclically), and the most recent projections by the Bureau of Labor Statistics show manufacturing employment recovering most of its current recession-related losses. Furthermore, while employment in manufacturing is still off of its previous peak, the same is not true for output. Manufacturing production in real terms had bounced back from the recession and by 1984, had reached a new peak level.

SERVICE/GOODS SHARES: Despite the overall stability in the absolute number of goods-producing jobs, the change in shares between the goods- and service-producing sectors has been dramatic. In 1959, the latter accounted for 60 percent of all employment, and the former sector accounted for 40 percent; by 1984, that ratio had shifted to 72 percent of employment in the service-producing sector and only 28 percent in the goods-producing sector. From an employment perspective, there clearly has been a large relative decline in the share of employment in goods-producing industries and a similar relative decline in manufacturing; however, in absolute terms the employment levels in all goods-producing sectors (except agriculture) were relatively stable prior to 1979, and these levels even increased in construction. Since 1979, manufacturing employment has declined appreciably, and only part of the cyclical losses of 1980 to 1982 have been recovered to date.

Table 2 shows some of the results of an analysis conducted by the Bureau of Labor Statistics. This analysis closely examined industry output and employment data for the fifteen year time period, 1969 to 1984. Industries were categorized into one of three groups: (1) consistent gainers in output and employment; (2) consistent gainers in output but employment losers; (3) and consistent losers of both output and employment.

Among the goods-producing industries that are important to Memphis and that are included in the dual gainer category are four of the seven agriculture industries, two mining industries, maintenance construction, and numerous manufacturing industries. Many of the electrical machinery and electronic equipment industries, which meet one of the high-tech definitions, have experienced production and employment advances in the last fifteen years.

Table 2
OUTPUT AND EMPLOYMENT TRENDS,
AVERAGE ANNUAL RATE OF CHANGE, 1969-1984

Industry	Positive Output	Positive Employment
Elec. Components/Access.	11.3	4.2
Commun. Except Radio/TV	7.5	1.3
Med/Dental Suppl and Instr.	5.5	5.7
Hospitals	5.3	3.9
Drugs	5.0	2.4
Doctors/Dentists Services	4.3	5.0
Electric Util. Pub/Priv.	4.3	2.9
Advertising	3.6	3.0
Furn./Fixtures Except House	3.5	2.1
Printing and Publishing	3.2	2.0
Air Transportation	2.8	2.4
Hotels and Lodging Places	2.8	3.9
Food and Feed Grains	2.4	0.6
Agriculture Chemicals	2.2	0.5
Maint. and Repair Constr.	2.2	3.3
Food Products	2.1	0.4

Industry	Positive Output	Negative Employ.	Industry	Negative Output	Negative Employ.
Musical Instrum.	3.0	-0.6	R.R. Equipment	-5.1	-1.6
Water Transp.	2.9	-0.2	Wooden Contain.	-4.1	-5.9
Grain Mill Prod.	2.8	-0.1	Household Indust.	-3.2	-2.7
Cotton	1.9	-8.9	Tires/Inner Tubes	-1.3	-1.5
Household Furn.	1.9	-0.8	Metal Cans/Contan	-0.6	-2.6
Household Appl.	1.5	-1.8	Tobacco Manuf.	-0.2	-1.4
Paint/Paint Prod.	1.2	-0.9			
Farm Machinery	1.0	-0.6			
R.R. Transp.	0.7	-3.0			

The rest of the industries on the list include virtually all of the individual service-producing industries in the data base. Only a few of the transportation industries, gas utilities, and service industries have lost either jobs or production or both between 1969 and 1984. The communications industries, electric and water utilities, trade, finance, and most other service industries have had positive trends in output and employment during the last fifteen years.

The decrease in the total employment share projected for the goods-producing sector will be concentrated in agriculture, mining, construction, and nondurable manufacturing industries. Durable-goods industries, however, are projected to account for greater shares of output and employment in 1995, contrary to past trends. Productivity also is projected to increase over the next ten years, but demand for durable-manufacturing products is projected to be high enough to stimulate job growth.

There clearly has been a long-term employment shift to the service sector and that shift has for the most part been a relative one only and not an absolute one. Only with the last cyclical downturn did the manufacturing sector fail to hold a steady job level. Furthermore, the relative shift to services has been pronounced far less for output than for employment, and manufacturing production has been growing in absolute levels.

Productivity

Output per employee is rising again. Most industries in manufacturing and services are enjoying a period of productivity improvement, which has been accomplished through harder work, management reorganization, and corporate investment in modern production/distribution systems.

Table 3 provides an overview of some of the leaders and laggers in manufacturing productivity change. The list is compiled to reflect some of the important segments of the Mid-South economy. Note that the leader is a high-tech industry: communications electronics. The other industries with positive productivity growth in Table 3 have values that are more typical of healthy industries. From metal cans to breakfast cereal foods, the present productivity profile looks good. Finally, Memphis has several firms in industries that are currently suffering productivity problems—railroad equipment, petroleum, and wood-working industries. Table 4 illustrates the record of productivity change in services and trade. In this sector of the economy, the record is much less even. Older firms in these industries are very labor intensive, use little capital equipment, and rely on a poorly trained work force. Note that two of the four industries with strong productivity advances are high-tech operations: airlines and telecommunications.

Table 3
MANUFACTURING PRODUCTIVITY INDEX
OUTPUT PER EMPLOYER HOUR IN SELECTED INDUSTRIES
(1977 = 100)

Industry	1984	Avg. Annual % Change 1979-1984
Radio & TV Receiving Sets	196.7•	14.5^
Metal Cans	133.5	5.3
Paper, Paperboard & Pulp Mills	123.9	3.7
Meatpacking Plants	123.4	3.7
Major Household Appliances	122.2	2.5
Cereal Breakfast Foods	118.7•	2.9^
Flour & Other Grain Mill Products	112.5	3.7
Bakery Products	106.6•	3.3^
Total, Tobacco	106.1	0.8
Switchgear & Switchboard Apparatus	105.1•	-0.2^
Pumps & Pumping Equipment	99.6•	-0.8^
Wood Kitchen Cabinets	93.5•	0.1^
Petroleum Refining	90.7	-2.1

• 1984 Data Not Available. 1983 Data Shown.

^ Percent Change 1979-83.

The record in this segment of the economy is much less positive than in manufacturing. Banking, trucking, and utilities—all industries that are important to the Mid-South economy—have current productivity problems.

Table 4
SERVICE AND TRADE PRODUCTIVITY INDEX
OUTPUT PER EMPLOYEE HOUR IN SELECTED INDUSTRIES
(1977 = 100)

Industry	1984	Avg. Annual % Change 1979-1984
Family Clothing Stores	155.1	7.3
Telephone Communications	146.1•	6.6^
Air Transportation	130.1	3.8
Franchised New Car Dealers	106.1	2.2
Hotels, Motels, and Tourist Courts	102.9	0.3
Commercial Banking	102.7•	0.7^
Intercity Trucking	101.1•	0.4^
Retail Food Stores	95.9	-0.5
Eating and Drinking Establishments	94.4	-1.1
Electric Utilities	94.1	-0.6
Gas and Electric Utilities	91.2	-1.9

• 1984 Data Not Available. 1983 Data Shown.

^ Percent Change 1979-83.

Productivity declines reflect a problem, but they also serve as a warning signal. A firm that introduces the technical and managerial corrections can reap the benefit of growing when others do not and of being profitable when others are not.

Memphis

What are the lessons for Memphis? First, any regional economy is part of the greater economy. Its success is largely dependent on the success of the whole economy, but within that context, the Memphis economy can lead or lag the United States economy.

To be a leader in regional growth, the Memphis economy must be attuned to three issues related to productivity advancement: industry composition, educational structure, and research culture.

The development of an industry base that uses advanced technology, invests in efficient capital goods, and hires skilled employees is clearly the most important feature. This will lead to future economic growth. While the focus of this analysis is usually on high technology, electronics, or scientific instruments, it is important to look below the surface.

The structure of a community's formal education system must be focused toward productivity advancement. Do the educated members of a community understand the technical basis of the local industry? Does the educational system result in employees who inquire into the rationale of their production apparatus? The formal education system needs to provide appropriate skills and the motivation to make things better.

The research culture is particularly important in the long run. The local economy must be driven by a tradition of productivity improvement. With a tradition that supports, encourages, and nurtures the development of new production methods, new organizational forms, and new distributional systems, the regional economy can be a leader in regional growth and enjoy the alternatives that higher incomes provide.

Productivity advancements are a double-edged sword, however. They bring positive and negative trends for an economy. On the negative side, productivity changes bring social change in general. Old industries, jobs, and occupations disappear, and training is required for new jobs. The disruptive influence of productivity advancements reduces the harmony and stability of everyday life in a community. These are tradeoffs that must be made. In addition, productivity advances often are easy to copy. The advantage of being best often turns out to be very temporary.

The positive side of productivity improvements are easy to list and include rising per capital incomes, more capital intensive industry, a better educated population, a competitive economy, and a high-technology based consumption and production system.

Do we need to weigh the balance between the positive and negative outcomes of productivity advancements? Not really. Because while productivity growth increases an economy's choices and alternatives, there is no choice on the issue of whether or not to search for productivity growth in the modern world. Productivity enhancement is the only solution to our modern economic ills.

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THE ON-CAMPUS RECRUITMENT PROCESS: A SURVEY OF STUDENTS' VIEWPOINTS

*William K. Parmley, Janice Parmley, and Charles W. Wootton**

Introduction

This 1986 survey investigates how students evaluate the on-campus recruitment process. The survey was conducted at Southwest Missouri State University, which has an enrollment of more than 16,000 students. One hundred questionnaires were mailed to accounting seniors who had graduated in either December 1985, May 1986, or August 1986. Fifty-six responses were included in the study.

Primary survey areas included why students chose specific employers, characteristics of good interviewers, and how well students could communicate their qualities and expertise to the recruiters. We found that prospects for future earnings was the number-one concern for choosing an employer. Opportunity for promotion was also a high priority. A majority of the students listed employer location as being important. The students reported little concern for required travel and overtime work required by the potential employer.

Responding students defined a good interviewer as one who is interested, a good listener, makes the student feel at ease, and exhibits sincerity. The students expected the recruiter to be organized well and to be concerned with students' career objective. Students were generally satisfied with their opportunity to communicate effectively their attributes concerning character and integrity, reasons for studying accounting, career objectives, and leadership roles. Ability to communicate educational background and work experience were given lower satisfaction ratings.

Overall, the students evaluated the recruiters favorably and were satisfied with the objectivity of the interview process. Areas in which recruiters could improve the interview process included demonstrating more interest and sincerity in student career plans, work and academic activities, personal objectives, and technical expertise. Specifically, recruiters should consider carefully the needs and expectations of the students when they establish their interview processes and techniques.

Questionnaire Survey Results

The questionnaire was sent to graduating accounting seniors at Southwest Missouri State University who had participated in on-campus interviews. One hundred questionnaires were mailed and fifty-six responses were returned. The response rate for male students was forty-six percent while the response rate for female students was fifty-six percent. The respondents' grade point averages (4.0 scale) were almost identical.

Why Students Chose Specific Employers

Major sections of our questionnaire were designed to gather student reactions to the on-campus recruitment process dealing with concerns such as why students chose specific employers, characteristics of good interviewers, and the opportunities students had to communicate their qualities and their accounting expertise. The students were asked to rank their answers from very important to very unimportant. Table 1 summarizes student replies of factors determining choice of employer.

Table 1
FACTORS DETERMINING CHOICE OF EMPLOYERS BY STUDENTS

	Very Important		Neutral	Very Unimportant	
Scale	1	2	3	4	5
Prospects of future earnings	52%	40%	0%	8%	0%
Good opportunity for promotion	68	20	4	4	4
Continuing education and staff training programs	40	44	8	4	4
Good fringe benefits	28	56	8	8	0
Firm's personnel are warm and friendly	52	32	12	0	4
Interesting clients or work	12	60	24	4	4
Starting salary	12	60	24	4	4
Youthful, dynamic personnel	28	40	24	4	4
Little or no travel	12	20	44	8	16
Little or no overtime	4	4	52	36	4

Tables do not equal 100 percent due to rounding

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The factors in the table have been ranked relative to assignment as important or very important by the students. Prospects for future earnings were the number one concern in choosing an employer with ninety-two percent of the respondents. Opportunity for promotion ranked at eighty-eight percent. This data reveals that students are very concerned with joining a firm in which they can fulfill their career objectives. Often we hear of students not wishing to work for a firm that requires considerable travel and overtime work; we did not find that concern in this study. When selecting a potential employer, sixty-eight percent of the students classified the amount of travel required by the company as neutral or unimportant, while ninety-two ranked the amount of overtime required as neutral or unimportant. Of course, these students were interviewing, in most cases, for their first full-time job and had not encountered some of the problems associated with considerable travel and large amounts of overtime.

Desired Characteristics of Good Interviewers

Another section of the survey dealt with student perceptions of the qualities of good interviewers. The results are tabulated in Table 2. Considering a scale of 1 or 2 to be important, we find that ninety-five percent of the responding students rank a good interviewer as one who is interested, a good listener, makes the student feel at ease, and exhibits sincerity. The students want the interviewer to be concerned with them as individuals. Eighty-six percent of the students considered it important that the interviewer be well organized, and eighty-one percent wished the interviewer to be concerned with their careers. They want the recruiter to put forth a serious effort in evaluating student attributes. Only twelve percent of the students assigned importance to an interviewer being close to the students' age.

Table 2
CHARACTERISTICS OF GOOD INTERVIEWERS

	Very Important	Somewhat Important		Not Unimportant	
Scale	1	2	3	4	5
They appear interested	74%	21%	2%	4%	5%
They listened to what I said	79	16	2	0	2
They make me feel at ease	72	23	2	0	2
They seem sincere	51	44	2	2	0
They are well organized	37	49	12	2	0
They are concerned with my career	46	35	14	2	2
They have a good sense of humor	37	37	21	2	2
Our conversation is not restricted	35	37	28	0	0
They neither talk too little nor too much	26	40	35	0	0
They are close to my age	0	12	28	33	23

Totals do not equal 100 percent due to rounding

We questioned the students on how well they were able to communicate their qualities and expertise to recruiters. Table 3 summarizes the students' responses.

Table 3
COMMUNICATION OF STRENGTHS AND COMPETENCIES

	Very Well		Neutral		Very Poorly
Scale	1	2	3	4	5
Your character and integrity	44%	37%	12%	7%	0%
Your reasons for studying accounting	28	40	21	2	0
Career objectives	28	46	19	7	0
Position of leadership	37	35	36	2	0
Education background	28	39	19	2	0
Extra-curricular activities	23	39	28	9	0
Personal background	14	46	33	7	0
Technical accounting/ auditing matters	2	58	30	5	2
Hobbies and pastimes	9	28	53	9	0

Totals do not equal 100 percent due to rounding.

The students' responses are ranked in order of their ability to communicate effectively with interviewers, assuming a scale of 1 or 2 to be satisfactory. Areas of greater satisfaction for students included the following: character and integrity, eighty-one percent; reasons for studying accounting, seventy-seven percent; career objectives, seventy-four percent; and leadership roles, seventy-two percent. Opportunity to communicate educational background and work experience were given a satisfaction ranking of sixty-seven percent. Extra-curricular activities ranked low at sixty-two percent as to how well students believed they conveyed this information to recruiters.

Other Survey Areas of Interest

We questioned the students as to whether geographic location of an employer was important. Seventy-two percent answered "yes." Eighty-one percent stated that the dress of the interviewer was very important. The middle-level manager was chosen by seventy-one percent of the students as the ideal rank for an interviewer.

Finally, we asked the students if they felt the on-campus interview process was an objective assessment of their qualities and of themselves. Eighty percent said "yes;" ten percent said "no;" and ten percent had no opinion.

Summary

Our survey of Southwest Missouri State University students indicated that on-campus recruiters at this university were perceived as creditable interviewers. Evidence indicates that the on-campus recruiters should exhibit more interest and concern for student career plans, work experience, academic preparation, personal objectives, and technical knowledge. Students indicated that good interviewers do listen, appear interested, and show sincerity. The students appreciate a climate that permits them to present their attributes to the recruiter. We found the students to be more interested in future earnings and promotion opportunities than in starting salary. They indicated minimal concern for travel and overtime work requirements. Recruiters should consider carefully the needs and expectations of the students.

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CORPORATE INVOLVEMENT IN HEALTH CARE: THE NEW HEALTH RESOURCE MANAGER

*Gordon Smith**

Introduction

This article takes the following positions:

1. In spite of governmental and business efforts to the contrary, costs of providing employee and dependent health-care coverage are still rising at an unacceptable rate.
2. Many current business and industry health-care cost-containment efforts are, in general, ineffective and in the long run may prove counterproductive.
3. Business not only should, but increasingly will, be forced to become more involved in the provision of health-care services.
4. In order to effectively manage health-care expenditures, businesses must acquire sophisticated health-care data-analysis capabilities.
5. With few exceptions, no single business has a sufficient number of employees to materially influence the providers of health care.

An article in *Modern Healthcare* carried this headline: "U.S. healthcare spending undergoes smallest 1-year increase in 20 years." The story following stated that "Total healthcare spending . . . rose 8.9%, the smallest rate of increase in two decades."[1]

Other reputable publications have made similar comments, all drawn apparently from a July 1984 release by HHS Secretary Margaret Heckler.[2]

The August 31, 1986, issue of *Medical Benefits* concurred with the 8.9 percent rate of increase stated by Heckler, but went on to report that "the increase in health spending far outstripped the low general inflation rate (3.9 percent) and GNP growth (5.6 percent). This continues a recent pattern in which an increasingly greater share of U.S. resources is devoted to health-care spending each year."[3]

At a National Coalition Leadership Development Conference[4] held recently, the following cost data were presented:

HEALTH-CARE COSTS
VERSUS
GENERAL INFLATION
(in percent)

Year	Hospital Costs	All Other Medical Care Costs	General Inflation
1985	up 8.6	up 6.7	up 3.8
1/86-7/86	up 7.5	up 8.4	down 0.2

Uwe Reinhardt reported, ". . . unfortunately, once health-care expenditures are adjusted for inflation, the data since 1975 warrants the following set of somber conclusions:

- Health-care expenditures expressed in constant dollars rose more rapidly after 1980 than in the late 1970s.
- Relative to the overall consumer price index, the prices of health services rose much more rapidly after 1980 than they did in the late 1970s.
- In short, if it is legitimate to speak of an American 'health-care cost crisis,' that crisis has gained momentum since 1980 and has been by no means licked."[5]

Reinhardt's analysis, as shown in Chart 1, indicates that in terms of dollars deflated by the consumer index, national health care has in the main been accelerating since 1980.

Traditional Approaches to Health-Care Cost Control

The increasing health-care cost burden, many times approaching approximately twenty-five percent of net revenue, has often forced corporate America to respond by development of several benefit design strategies. The most common response being to require that employees share in health-care costs through deductibles and coinsurance.

Most companies that require employee participation in health-care costs establish a stop-loss at some point. While there are convincing arguments that encouraging em-

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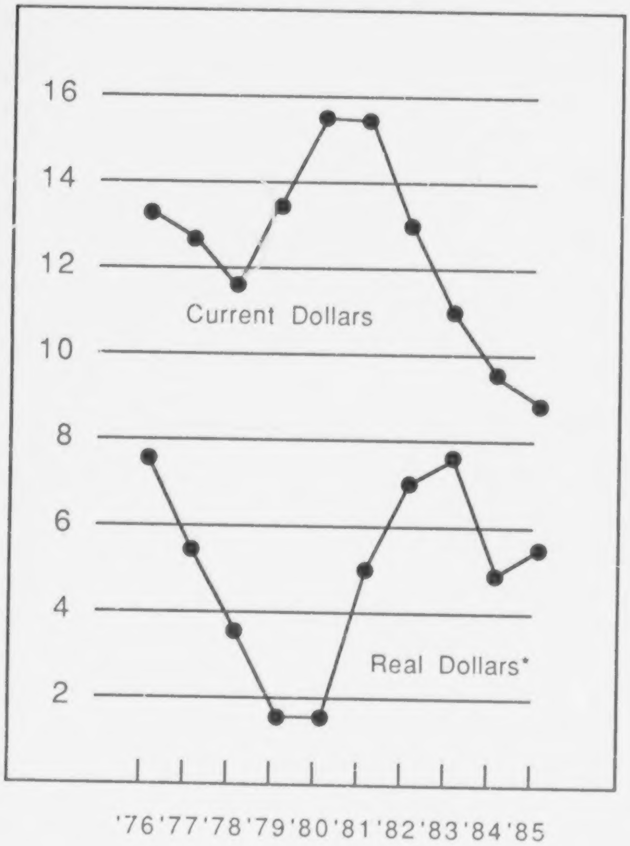
**Mr. Smith is president of Memphis Business Group on Health.*

Chart 1
NATIONAL HEALTH EXPENDITURES
(Percent Change)



* Constant 1985 dollars.
Source: Uwe E. Reinhardt, Medical Benefits, Health and Human Services Department, October 15, 1986

ployees to become more prudent buyers of health care is cost effective, equal arguments can be made that such efforts are, in fact, the same approach used historically by hospitals—that is, "cost shifting."

While shifting health-care reimbursements from employer benefit costs to employee responsibility may result in some savings, such transfers do not effectively deal with the basic need to change the health-care reimbursement system. From a negative perspective, placing co-insurance and deductibles in benefit plans gives the message to health-care providers that increases far above acceptable are quite all right, and they may continue with business as usual.

Business as usual from the health-care provider perspective means that usual and customary costs will be paid by a public who, rather than buying products or a service element in an informed manner, reimburses the seller of those services. The seller is reimbursed because that seller has mandated the service to be provided, has mandated the setting for that service, has mandated how much is needed, and has mandated what price will be paid.

One element of health-care costs resides in reimbursement mechanisms that have isolated facility-based health care from normal market forces. This isolation included a cost/plus basis for many charges and resulted in facilities enlarging their physical plant far beyond need.

Across the nation, business is being forced to pay in health-care premiums the costs of flagrant excesses in hospital beds and equipment.

Based on 1985-1986 data, hospital occupancy rates averaged approximately sixty percent[6] in the Memphis area. That occupancy rate translates into surplus capacity sufficient to provide care for a population nearly double in size.

In a free market environment such bad business decisions, as would result from such excesses, would conceivably lead to failure and most probably to drastic personnel changes. However, due in large part to the protected reimbursement environment enjoyed by most hospitals, long-term debt and future capital costs are "passed through"; new construction escalates and the cost of care inevitably increases.

With the collapse of the federal health-planning program, there is now no local oversight of hospital construction by any payer group. This poses a probability that even though business, through various free-market mechanisms, attempts to purchase care in a more prudent fashion, the basic flaws of the health-care reimbursement system will continue to aggravate the problem.

The Competitive Approach

While some proponents of deregulation suggest that removal of regulatory restrictions on health-care construction will lead to increased competition to market controlled prices, evidence from at least two states shows the contrary.

The experience of Arizona and Utah, which have both deregulated the health-care system in 1985, is as follows:

- In Arizona, where hospitals still must obtain building permits from the state health department, the total value of requested permits was $188 million in 1985 before deregulation, up from just $17 million in 1984. Permits with a total value of $67 million were requested in the first six months of 1986.
- In the Phoenix area, three general acute-care hospitals are in various phases of development, and five psychiatric hospitals are under development.
- New health services have sprung up since deregulation. Before deregulation, four Phoenix-area hospitals operated open-heart surgery programs that performed an average of 700 procedures annually.
- Since deregulation, four open-heart surgery programs have opened in the Phoenix area, and another three are planned. As a result, the existing programs have engaged in a bidding war

to keep or replace cardiac-care nurses and other staff members. In addition, the volume of procedures at the existing open-heart programs has dropped fifteen percent.

- Hospital occupancy rates in Arizona dropped four percent in 1985 from 1984, chiefly because of increased capacity, but total hospital revenues in the state increased 5.7 percent in the same period, indicating that deregulation hasn't had an immediate impact on state hospital costs.
- In Utah, fourteen new hospitals totaling 900 beds were proposed for construction in the first sixteen months after the state's law expired. All except one of the proposed new hospitals will be psychiatric facilities and therefore will be exempt from Medicare's prospective pricing system.
- Of the proposed new beds in Utah, 522 were complete or under construction by last April. Competition for nursing staff already is beginning to increase nurses' salaries in Salt Lake City.
- Some 3,800 new nursing home beds have been proposed since deregulation—a sixty-four percent increase from a base of 6,000 beds at the end of 1984. If all 3,800 beds are built, the statewide occupancy rate will dip to fifty-eight percent.[7]

The jury is still out on competition. If in three or four years we start to see some providers close their doors, we'll know competition is working. If they just keep raising prices to subsidize unused capacity, it won't be working.

Coalitions And Business Groups On Health — A New Private Initiative For Health-Care Cost Management

The foregoing has indicated that while business, industry, and government have, in various ways, attempted to address the critical issue of rising health-care costs, a more vigorous effort is required.

While individual businesses change benefit designs to lessen corporate costs, the inherent nature of the health-care reimbursement schemes assures that the system will continue unwarranted growth and that any reduction in cost will be illusory.

As controls on construction of health facilities are removed, businesses will be covertly forced to purchase employee health benefits in a system uncontrolled by normal economic constraints.

In order to change the health-care system in a meaningful way, businesses must develop mechanisms forcing that system to operate in a more free-market way while ensuring a level of quality acceptable to the care giver, receiver, and payer.

To achieve such an impact, businesses not only must have access to a cadre of personnel trained in diverse health-care specialties, but must also operate from an economic base that requires the health—care system to listen to its concerns and recommendations.

Many recent publications have described the successes of major corporations (such as General Motors and Ford) in controlling health-care costs and have suggested programs that could be initiated by other corporations. Unfortunately, relatively few businesses have that number of employees consuming significant dollar amounts of health-care benefits that are required to attract the attention of the health-care system. A lone buyer in an unresponsive market has little opportunity to achieve desired change.

One method of approaching the problem of health-care costs is to join with other businesses in a Business Group on Health or Health Care Coalition.

The national data base on health-care coalitions provides a picture of steady growth in the expansion of coalition composition, bringing together different perspectives to address the management of health-care use and of expenditures. The 1986 report from the data base, maintained by the American Hospital Association on behalf of the Dunlop Group of Six, contains information on the 178 coalitions that have responded to the 1985-1986 annual survey, including 163 operational and 15 developmental coalitions.

Forty-two coalitions reported that their composition includes all six of the interest groups present within the Dunlop Group of Six, an increase of fifteen from 1985. The most frequently reported interest group continues to be business, active in 155 of the 163 operational coalitions (95.1 percent). Twelve coalitions, or 7.4 percent, report that they are composed of business representatives only, compared to 21 coalitions (13.9 percent) in 1985. Hospitals/hospital associations are active in 122 (74.8 percent) coalitions, physicians/medical societies in 117 (17.8 percent), commercial insurers/Health Insurance Association of America in 97 (59.5 percent), Blue Cross and Blue Shield plans in 92 (56.4 percent), and labor organizations in 59 (36.2 percent). Thirty-eight (90.5 percent) of the forty-two coalitions reporting the involvement of all six interest groups also include government.

There is, however, anecdotal information that suggests there is a significant number of (possibly as many as fifty or more) "all business" coalitions that choose not to be listed in American Hospital Association publications.

Education of coalition members continues to be the most frequently reported endeavor with 148 coalitions involved in this activity. One hundred and twenty-six coalitions reported surveying their members to collect information about specific subjects such as benefit plans (109), health costs (104), health service utilization (90), health promotion/wellness programs (82), and health-cost management programs (80). Eighty-five coalitions report having access to a data base, and nintey-six have a data committee or task force. One hundred coalitions work with their members in the design of employee-health benefits, and eighty-nine work on communication programs for members' employees.

The operational coalitions that responded to the survey are active in forty-four states. There are twelve coalitions in California; ten in Ohio; nine in Illinois, Pennsylvania, and Tennessee; eight in Indiana and Massachusetts; and seven in Georgia, New York, North Carolina, and Wisconsin.

The Memphis Business Group on Health

The Memphis Business Group on Health (MBGH), located in Memphis, Tennessee, is one example of the all-business coalition.

Four major Memphis employers, recognizing that no single business had sufficient leverage to affect health reimbursement change, joined to create the Memphis Business Group on Health.

The Business Group has now grown to sixteen companies ranging in employee size from fewer than 100 to more than 35,000. Total covered lives in the Memphis area approach 80,000.

It is anticipated that new members will join the Memphis Business Group on Health as its services are more broadly understood.

After lengthy development and refinement of approaches, MBGH has taken the perspective that in order to effectively control health-care costs, it must become a change agent rather than simply a "policeman." In addition, the Group has decided that a long-term, nonadversarial change is preferred to confrontations that may or may not lead to short-term gains.

In order to become a change agent, it is necessary that business be able to deal with providers of care from a position of knowledge—knowledge based on economic and intellectual reality.

MBGH is approaching the many intricate issues involved in health-care cost management on the assumption that corporations must purchase health care in a business-like fashion rather than to simply reimburse health-care providers for services rendered. To this end, it is the Group's intent to buy the most effective quality in the appropriate volume for the best price. As the basis for decisions relating to quality, volume, and cost, MBGH has undertaken a massive data collection, collation, and analysis effort aimed at providing its membership with tools from which to make rational health-care purchase and health-benefit redesign decisions.

Using an interactive benefits-claim-tape analysis software system, MBGH will retrospectively view all incidents of care paid through each company's benefit plan.

Recognizing the dynamics of the medical-care system, careful analysis must be made, not only of in-patient hospital care but out-patient episodes as well. In effect, the analysis of data will cover any episode of care reimbursed through a benefit program regardless of where that treatment occurs.

MBGH staff will carefully monitor the entire Business Group's experience for emerging trends and identify by company problems requiring further investigation.

Trend analysis will also include longitudinal profiling of facilities, physicians, and all episodes of care that are reimbursed through a given benefit plan. From that, incentives can be developed that encourage quality and

After four months of study and vendor interviews, the Group had decided to create its own review system rather than purchase an "off the shelf" program.

There are many quality review programs available commercially. Reasons for development through a business group or coalition are based on the need to control all components of each company's health-care reimbursement data base and to be able to quickly modify the program as company priorities dictate.

Utilization Review (UR) is, by some, viewed as an end in itself. MBGH views UR as a tool to achieve health-system change and as such is one of its most important data sources.

By owning its own utilization review program, a business group can have a service totally controlled by the membership. Through this process, cost of the service can be figured at a "break even" level, and quality of the product can be assured.

Constant membership monitoring of quality, volume, and cost indexes can assure that needs of the employer and employee are met in a reasonable fashion at a reasonable price.

MBGH's approach, depending on the requirement of each company, may include pre-admission certification, monitoring length of stay, concurrent medical chart review, hospital bill audit, second surgical opinion, case management, and "hotline" service.

Using nationally accepted criteria for admission, the UR program will allow each provider of care and each potential patient to know before a service is rendered whether that service is reimbursable and for what period of time.

The case-management perspective is seen to be one of the most valuable cost-management aspects of the UR program.

MBGH nurse reviewers will, upon initial contact with an admitting physician, attempt to ascertain the likely course of treatment of a given patient and work with physician and patient to obtain the best outcome-versus-cost situation.

The issue of AIDs is a case in point. If an AIDs patient is admitted to a hospital and pursues an in-patient care model, the average case cost normally exceeds $100,000. Recent information suggests that while medical research is developing new approaches to the care of AIDs patients and outcomes may well improve, the cost of that care may rise to approximately $160,000 per case. With careful case management from diagnosis on, an effective treatment plan including in-patient, out-patient, home health, and hospice care can, if agreeable to both patient and physician, be designed at an estimated $40,000 savings over present in-patient costs.

Hospital bill audit programs have two components—arithmetic and appropriateness.

The arithmetic component is self-explanatory and involves checking for errors in a bill. It has been estimated that as many as ninety percent of all hospital bills have arithmetic errors.

cost effectiveness and discourage unnecessary health-care utilization in settings of poor quality and high cost.

Because of legal implications and unique corporate cultures of the MBGH membership, issues made obvious through this trend analysis will be dealt with by each company independently. As an example, MBGH has solicited requests for proposals from Preferred Provider Organizations (PPO). MBGH will make this arrangement available to all members but does not expect to enter into a single provider contract for all members collectively. Decisions regarding participation with a PPO are left entirely with each company.

The data system also includes the capability of benefit plan design modeling with a "what if" feature.

This "what if" feature makes it possible to review past data and project what costs would have been, or will be, if the benefit schedule were altered. From the perspective of cost management, this is seen to be a critical element of the data system.

To control the volume of care purchased, the group had elected to make available a health-care utilization review system.

Appropriateness errors also can be divided into two aspects. Because most hospitals bill on a standing order basis, charges can be made for services not provided or delivered. To elaborate in a simple example, nearly all patients admitted to a hospital will be billed for an "admission kit" containing lotion, emesis basin, etc. This will be added to the bill whether or not the patient wants it, needs it, or in fact receives it. This is usually true for many other items such as lab tests and medications.

Appropriateness of charges involves such things as whether a needed service is provided in the most cost-effective manner. In a recent conversation, Dr. Richard Cooper, president of FOCUS, offered this example:

"Suppose a physician orders 2,000 cubic centimeters of intravenous fluid be given a patient. While that order may be, and probably would be, reasonable and necessary, the hospital has several options. The 2,000 cubic centimeters may be administered using two 1,000cc bottles at a cost of, let's say, $25 each for a total charge of $50—or in four 500cc bottles at $18 per bottle for a total of $72—or eight 250cc containers at $12.50 per bottle for a total charge of $100."

A business group with access to the appropriate data would be aware of alternatives such as those mentioned above.

As business groups become more sophisticated in negotiating with facilities and providers, the need for clear data, both retrospective and current, will become even more necessary. Without valid data, conditions will continue in which the buyer of care makes that purchase ignorant of whether or not the care given is of appropriate quality, is in the correct volume, and is at the right price. Meanwhile, the provider will continue to be isolated from free-market constraints.

During this time of change in the health-care market, most products being offered such as Health Maintenance Organizations (HMO) and Preferred Provider Organizations (PPO) were developed to protect market share in an inordinately inflated market that does not respond to normal free-market restraints. Many of these programs may, in certain circumstances, be a good buy; in other circumstances, what may appear to be a reasonable and cost-effective program may in fact increase total health-benefit costs. Involvement in a business group and/or coalition can provide a mechanism for more discriminating decisions relative to critical elements such as demand for health care, reasonableness of charges, and effectiveness of treatment through outcome studies.

In addition to the programs previously described, many coalitions or business groups are taking increased interest in development of legislative education

Conclusion

History shows that most state and national legislation for health systems has been influenced by lobbying efforts of health-care providers. With massive cost and care problems facing the nation, it is critical that businesses inform legislators of the private sector's viewpoint. While the individual company has a role, it seems obvious that a business group can be more effective.

As business groups on health mature, these groups may expand from health-care cost containment to more global activities, which could be described as health resource management. This management will involve not just buying good quality in the right quantity and at the best price, but will also include management of a corporation's activities in health care from an internal and external base. In the long-term, companies will realize that their continued good health is just as dependent on the rate of teenage pregnancy and other "social" problems as it is on how much they pay in health insurance premiums.

The need for groups of businesses to collaborate in health-care management issues can be clearly seen in recent enactments of such programs as COBRA and Uninsurable Risk Pools.

At a recent meeting, U.S. Senator David Durenberger said the following will be mandated:

- minimum benefits to be provided by employees;
- catastrophic insurance coverage to be provided by employers;
- and uninsured and uninsurable risk pools.

Other points to contemplate:

- There are 40,000,000 people in the United States without health insurance. Sixty-seven percent of them are employed in firms not providing any coverage.
- There is a high probability that ERISA protection for self-insured corporations will be repealed.
- Projections suggest that the lone purchaser of care in an unresponsive market will be unable to deal effectively with the health-care system.

Development of business groups on health or development of coalitions where community structure dictates is an effective tool in positioning the purchaser of care to become a more prudent buyer. Quality of care can be assured, volume of purchases can be more closely monitored, and competitive pricing structures can be developed within existing or developed arrangements for health care.

Footnotes

[1] Howard J. Anderson and Mark F. Baldwin, "U.S. Healthcare Spending Undergoes Smallest 1-Year Increase in 20 Years," *Modern Healthcare*, 15 August 1986: 28.

[2] Rick Spencer, *Medical Benefits*, 31 August 1985: 1.

[3] Ibid.

[4] National Coalition Leadership Development Conference, Minneapolis, Minnesota, 14-16 October 1986

[5] Uwe E. Reinhardt, "The Money Illusion in Healthcare," *Modern Healthcare*, 10 October 1986: 138.

[6] Health Resource Development Corporation, *Data Supplement 1986*, 14.

[7] Jennifer Fine and Kari E. Super, "Repeal of Some States' CON Laws Spurs Psychiatric Hospital Construction," *Modern Healthcare*, 10 October 1986: 74-76.

COMPETITION AND NURSING HOME COST DIFFERENTIALS

Cyril F. Chang and Howard P. Tuckman[*]

Introduction

The nursing home sector is one of the most rapidly growing components of the American health-care system. While national health-care expenditures grew by 1,340 percent between 1960 and 1984, total nursing home expenditures increased by 6,300 percent (Levit et al., 1985). In 1984, a total of $32 billion was spent for nursing home care, and by 1990, this figure is expected to climb to $58 billion (Gibson et al., 1984). Given the size of this sector and the pace at which it is growing, a need exists for in-depth analysis of the factors that affect the cost of providing nursing home services.

One area of concern to policy-makers involves how to create an institutional environment that keeps cost increases to a minimum. This question is important not only to economists and state and local regulatory agencies but also to potential investors, consumers, and third-party insurers. As part of the quest for new cost-reduction strategies and ways to increase efficiency, it is inevitable that the question of ownership will receive careful scrutiny. In particular, the issue of whether to distinguish for-profit and not-for-profit institutions is likely to be discussed with increased frequency as for-profits continue to expand their share of the nursing home market.

In recognition of the need for better data on the economic consequences of the two ownership forms, this article analyzes the cost structure of the Tennessee nursing home industry from the point of view of cost differences between the for-profits (FOPROs) and not-for-profits (NOPROs). Of particular concern is how the growth of FOPRO competitors has influenced the structure of the nursing home sector and the cost of nursing home services.

Brief Review of Literature

Economists have developed and applied a property-rights theory to explain differences in cost between FOPRO and NOPRO firms (Alchian & Demsetz, 1972).

NOPRO costs are assumed (and found) to be higher because NOPRO decisionmakers are not under pressure to make profits. Because they are not motivated by profits, NOPRO decisionmakers maximize the satisfaction they receive from their immediate environment. This is done by acquiring additional staff, raising their own and their staff's salaries, and by adding capital equipment. A consequence is that NOPRO costs rise relative to those of profit-seeking, cost-minimizing FOPROs.

Evidence from recent empirical studies seems to support the outcome hypothesized by property-rights theorists. For example, a review of nine previous studies on nursing home costs by Bishop (1980) found that NOPRO nursing homes consistently had higher costs than FOPRO nursing homes by at least several dollars per day. Bishop's conclusion is supported by at least two other recent studies, Frech and Ginsburg (1981) and Lee, Birnbaum, and Bishop (1983). The former report read that "nonprofit firms have higher costs than for-profit firms, with a substantial part of the differences probably related to efficiency."

They also note that the effects of ownership depend, in part, on the form that third-party reimbursement takes. Specifically, NOPRO homes have higher costs than FOPROs when the third-party payers reimburse on a cost-plus basis, but NOPRO homes do not have higher costs than FOPROs if a flat-payment reimbursement system prevails.

O'Brien, Saxberg, and Smith (1983) reviewed studies conducted in England, Wales, several individual states in the United States, and groupings of states. They objected to the major conclusions of property-rights theory and argued that while Bishop (1980) and Frech and Ginsburg (1981) found higher costs for NOPROs, in fact, the "evidence is mixed" and "on the whole the two ownership types are not far apart." While FOPROs have higher costs in England and Wales, there is little difference in Minnesota, Detroit, and Washington. O'Brien et al. believed that future researchers should provide better measures of quality and cost and pay greater attention to changing industry conditions.

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Differential Costs Among Tennessee Nursing Homes

The state of Tennessee has 261 nursing homes (*Annual Report for Nursing Homes*, 1984) and an aggregate ratio of 50.20 nursing home beds per 1,000 population aged 65 and older (*Tennessee State Health Plan, 1985-1990*, 1984). Although the average occupancy rate exceeds ninety-five percent, the supply capacity of the industry seems adequate because the state has 2,905 Certificate-of-Need (CON) approved beds that can easily be licensed and brought into service.

Of the 261 nursing homes in Tennessee, 187 or seventy-two percent are FOPROs; fifteen percent and thirteen percent, respectively, are NOPRO or public institutions. Figure 1 describes the distribution of nursing homes by size and ownership. Note that most of the nursing homes irrespective of ownership type are small in size, and the majority have between 50 and 150 staffed beds.

Figure 1
NURSING HOMES BY SIZE
AND OWNERSHIP
(Tennessee 1984)

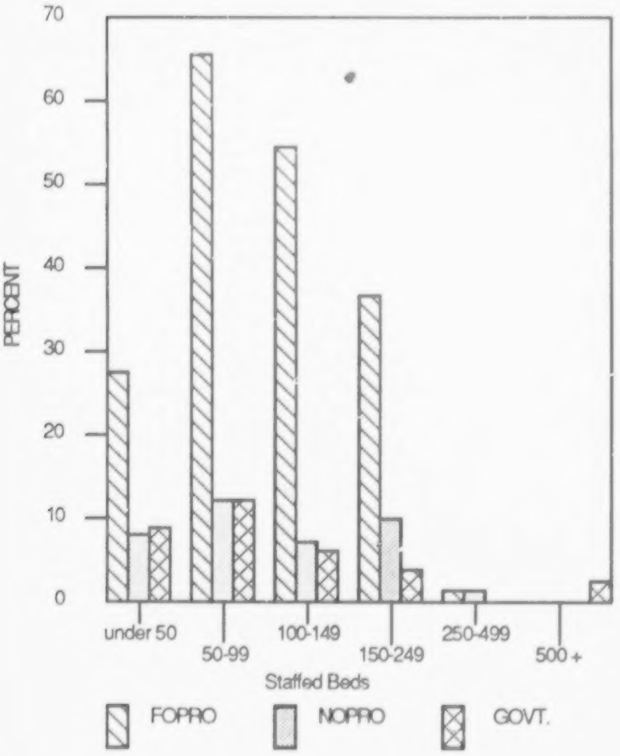


Table 1 presents a tabulation of average costs per patient day in 1982 by nursing home size and ownership. It supports the presumption of property-rights theory that NOPROs have higher costs than FOPROs. As can be seen in the table, NOPRO costs are on the average seven percent (or $2.31 per day) higher than those of FOPROs. While such simple tabulations of average costs are interesting, they ignore quality of care and other cost-determining factors.

Table 1

AVERAGE COST PER PATIENT DAY BY OWNERSHIP
TYPE AND BED SIZE, NON-FEDERAL
NURSING HOMES, TENNESSEE,
1982

Bed Size	All of Tennessee	Ownership Type		
		NOPROs	FOPROs	GOVs
Under 50	$31.05 (44)	$29.84 (6)	$30.22 (27)	$33.34 (11)
50-99	30.62 (85)	28.32 (13)	31.16 (64)	30.07 (8)
100-149	31.36 (61)	38.66 (4)	31.13 (48)	29.43 (9)
150-249	35.36 (41)	37.36 (7)	33.09 (29)	40.16 (5)
250-499	31.78 (2)	— (0)	28.07 (1)	34.57 (1)
500 and Over	44.57 (2)	— (0)	— (0)	44.57 (2)
Total	$33.07 (235)	$33.96 (30)	$31.65 (169)	$37.52 (36)

* The numbers in parentheses are nursing homes which reported complete data to the Tennessee Department of Public Health. These represent ninety-four percent of the total nursing homes in Tennessee.

Source: *Report For Nursing Homes, 1982*, Department of Health and Environment, Nashville, Tennessee, 1983.

Table 2 presents for NOPROs and FOPROs in 1982 four measures of per patient resource intensity—number of employees per patient, number of nursing hours per patient, number of therapist hours per patient, and number of administrative hours per patient. The data are stratified by percentage of skilled Medicare/Medicaid beds to control patient-mix differences that may exist between ownership types. Note that, in fact, no significant differences in resource level exist in most categories. Only in the more than seventy-five percent skilled-bed category are large differences between NOPRO and FOPRO observed. Moreover, to the extent resource intensity is a proxy for quality, the data suggest no significant differences in quality of care between NOPRO and FOPRO institutions.

Convergence of NOPRO and FOPRO Costs and the Inadequacy of Property-Rights Theory

The above tables indicate that the cost differences forecasted by the property-rights theory existed in the Tennessee nursing home industry in 1982, but do they exist over time? Table 3 shows cost data for the period 1977-1984. (Earlier data do not permit disaggregation by ownership type.) Note that NOPRO homes consistently have higher average costs than FOPROs. However, the magnitude of cost difference varies over time. The cost difference narrows from 1977 to 1982 and becomes larger after 1982. This raises several important questions and

Table 2

RESOURCE USE BY TYPE OF OWNERSHIP AND LEVEL OF CARE OFFERED 1982

Resource Type	Percent of Skilled Beds				
	Under 10	10-24	25-49	50-74	Over 75
Number of Employees/Patient					
NOPROs	.81	.85	.74	—	1.73
FOPROs	.74	.91	.75	1.39	.65
Number of Nursing Hours/Patient					
NOPROs	4.04	4.70	3.60	—	12.42
FOPROs	3.75	4.79	3.77	6.74	3.69
Number of Therapist Hours/Patient					
NOPROs	.04	.04	.08	—	.15
FOPROs	.04	.10	.22	.17	.15
Number of Administrative Hours/Patient					
NOPROs	.18	.04	.07	—	.08
FOPROs	.19	.09	.11	.35	.10

Source: *Report for Nursing Homes, 1982*, Department of Health and Environment, Nashville, Tennessee, 1983.

points out a shortcoming of property-rights theory. For example, while it is true that NOPRO costs have been consistently higher, what is the reason behind the observed variation of cost differentials over time? Also, in the future, will the cost gap be wider or narrower, and is the behavior of relative costs of the two types of institutions predictable? The property-rights literature does not provide answers to either question.

Table 3

AVERAGE COST PER PATIENT DAY BY OWNERSHIP TYPE, NON-FEDERAL NURSING HOMES, TENNESSEE, SELECTED YEARS, 1977-1984

Nursing Home Type	1977	1979	1982	1984
NOPRO	$24.10	$28.65	$53.96	$59.24
FOPRO	20.53	25.49	51.65	53.10
Difference	3.57	3.16	2.31	6.14

Source: *Annual Report of Hospitals, Nursing Homes, and Homes for the Aged in Tennessee*, and *Report for Nursing Homes*, selected years, Department of Public Health, Nashville, Tennessee.

The Pressures Toward Cost Convergence In the Long Run

We believe that the observed variation in the cost differential between 1977 and 1984 can be understood by contrasting two health-care sectors. The nursing home industry consists of many small firms that can enter and exit the industry with relative ease (subject to CON review). In contrast, the hospital industry consists of a few (mostly large) firms that are limited in their ability to enter and leave the industry. Nursing homes provide relatively homogeneous and limited services to their patients, while hospitals provide a wide diversity of procedures, treatments, and tests. Nursing homes are usually chosen by consumers, while consumers are often guided by physician preferences in the choice of hospitals. These considerations suggest that nursing homes inhabit an industry best described as monopolistically competitive, while hospitals exist in an oligopolistic environment.

What are the implications of these differences in structure? Assume that the nursing home industry initially consisted of a few, largely NOPRO nursing homes. Suppose, too, that NOPRO decisionmakers pursued and maximized nonprofit goals so that property-rights theory was correct in its prediction of higher NOPRO costs. Given the competitive conditions outlined above, an incentive would exist for new entrants to enter the industry over time because they would be able to compete with existing NOPROs at lower cost levels.

If demand were constant, and existing NOPROs were disinterested in profit-maximization, the incentive to enter would grow as the cost differential increased over time. The incentive would also grow, although more rapidly, if demand rose and supply stayed constant. In either case, NOPRO behavior would encourage the entry of new competitors because they could offer comparable services at lower costs by using more efficient resource combinations. While the new competitors could be either NOPROs or FOPROs, they would most likely be FOPROs because of the lengthy process required to attain NOPRO status.

The entry of new competitors would be accompanied by a declining share of existing NOPROs who might then consider several alternative strategies: (1) Do nothing, maintain existing cost differentials, and accept declining occupancy rates; (2) Bring charges and costs closer into line with those of new competitors and use any inherent cost advantages to build endowments; (3) Bring costs and/or charges down and use inherent cost advantages to engage in price competition and drive new competitors out; (4) Use higher costs and charges to differentiate resource capacity (Joskow, 1980), amenities (Held & Pauly, 1983), case mix (Schenleker & Shaughnessey, 1984), location, or service offerings.

If demand does not rise more rapidly than supply, Strategy 1 will be abandoned when NOPRO occupancy rates fall to a threatening point. Strategy 2 emphasizes survival. We hypothesize that, in the presence of intensified competition, it will be favored by NOPROs (Kaufman, 1976). Strategy 3 might appeal to NOPROs experiencing rapidly declining occupancy rates and/or market share. However, absence of empirical examples of price-based competition among NOPROs and FOPROs and the fear of political pressure to review the benefits that NOPROs receive make the choice of this strategy by large numbers of NOPROs unlikely. Finally, the choice of Strategy 4 is implicitly assumed by property-rights theorists. However, the absence of advertising that emphasizes quality or amenities-based differentiation in Tennessee makes us wary that this is the basis for nursing home competition.

If demand grows in line with supply, and if the predominant long-run NOPRO aim is Strategy 2, then NOPRO and FOPRO costs will converge through time. How fast this occurs will depend on the growth rates of demand and supply that prevail in a particular market and how quickly NOPROs settle on Strategy 2. Suppose that supply grows more gradually than demand. This could occur if capital markets are imperfect, natural barriers to entry exist, knowledge of profit opportunities is imperfect, or governmental regulations preclude easy entry. Evidence is lacking that the first three conditions exist in the nursing home industry. However, CON legislation places a potential limit on the supply of new competitors. For example, in Tennessee, new competitors require CON approval, and existing homes are limited to ten percent growth or ten new beds every two years.

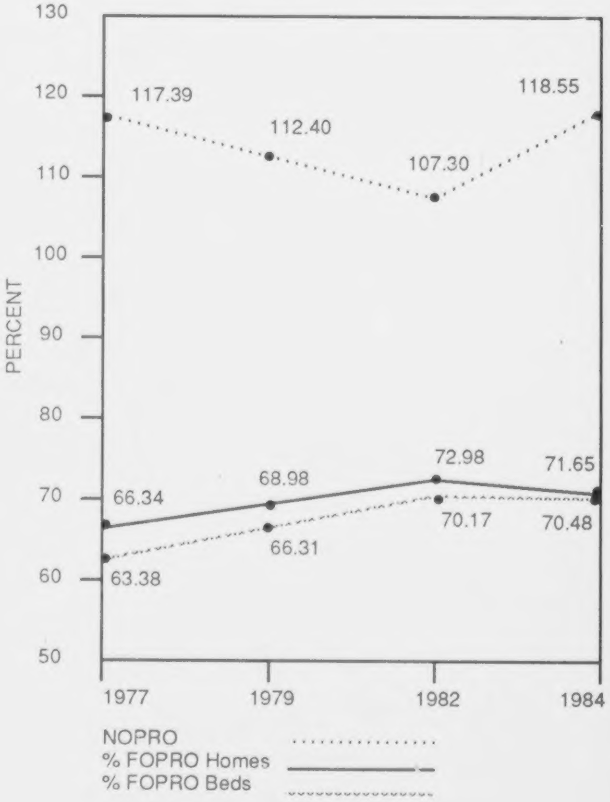
To the extent that CON laws allow demand growth to exceed supply growth, Strategy 1 becomes more attractive. However, because the imbalance created by CON legislation raises the potential profits to those who are successful in entering the industry, it will create pressure from competitors who want to liberalize the restrictions. It is hard to imagine the maintenance of long-term CON entry barriers if this situation persists. In the long run, new entrants enter, while in the interim, existing FOPROs expand as the laws permit without CON approval. Eventually, this entry threatens existing NOPROs and causes a re-evaluation of strategy. Thus, CONs impede rather than stop cost convergence. Only if demand growth continually outruns supply are cost differentials between ownership types likely to persist for long periods.

Do Competitive Conditions Lead to Cost Convergence?

The analysis presented above suggests that under specified conditions, the costs of NOPROs and FOPROs lean toward equality because of the pressures of market competition. In Tennessee, FOPRO growth in recent years has been substantial—from 136 FOPRO nursing homes in 1977 to 187 in 1984. This thirty-eight percent expansion increased FOPRO market share from sixty-four percent to more than seventy percent. If our hypothesis is valid, the growing FOPRO market share should be accompanied by convergence of the costs of the two ownership types, albeit with a lag.

Cost and share data for the period 1977-1984 are displayed in Figure 2. The top line (NOPRO) gives NOPRO cost per patient day as a percentage of FOPRO cost. Note that between 1977 and 1982 when FOPRO firms increased both in number and in operating beds, the NOPRO ratio declined toward unity. After 1982, the NOPRO ratio moved upward as FOPRO market share leveled off. The NOPRO ratio is sensitive to changing demand and supply conditions as well as structural changes resulting possibly from the introduction of hospital DRGs. Nonetheless, the above data suggest that a relationship may exist between FOPRO growth and cost convergence.

Figure 2
RELATIONSHIP BETWEEN GROWTH OF FOPRO
NURSING HOMES AND RELATIVE COSTS
1977-1984
(in percent)



Our results should be treated with caution for several reasons. First, it can be argued that our results are unique to Tennessee where skilled-care facilities are limited. Second, it may be true that resource use is better captured by a more disaggregated analysis of specific illnesses or of the physical abilities of residents (Schenleker & Shaughnessey, 1984). Third, the cost differences may reflect amenities (e.g., more expensive furnishings, more social activities, etc.) not controlled for in the comparison. Unfortunately, our data base is not refined enough to provide the information necessary to address these criticisms. However, we can stratify on the basis of the percentage of semi-ambulatory patients in a home (a crude measure of physical abilities), and when this anyalsis is conducted, little evidence is found of significant differences in either number of employees per patient or total number of nursing hours per patient by ownership type.

Multivariate Modeling of Ownership Effects

The literature is replete with single and multiple multivariate cost equations (Bishop, 1980; Frech &

Ginsburg, 1981; Lee, Birnbaum, & Bishop, 1983; O'Brien, Saxberg, & Smith, 1983). These yield different conclusions regarding the effects of ownership depending on the geographic area under study and the model specification. Based on careful analysis of earlier studies, we constructed a single equation model to test ownership effects in Tennessee. The dependent variable is total operating cost, and the independent variables are composed of the following:

OCCUP - Occupancy rate.
WAGE - Average employee salary.
NHOURS - Nursing hours per patient.
PT - Ratio of part-time to total personnel.
PRIV - Proportion of private-pay patients.
BEDPD - Proportion of patients confined to their beds.
SEMIAMB - Proportion of semi-ambulatory patients.
B1 - Dummy variable equal to 1 bed size is 1-49.
B2 - Dummy variable equal to 1 if bed size is 50-99.
B3 - Dummy variable equal to 1 if bed size is 100-149.
SKILL - Dummy variable equal to 1 if home has Medicare/Medicaid certified skilled beds.
ACRD - Dummy variable equal to 1 if accredited by Joint Commission on Hospitals and Nursing Homes.
MGMT - Dummy variable equal to 1 if home has management contract.
NOPRO - Dummy variable equal to 1 if home is a NOPRO.
OCCUPD - Slope dummy variable for OCCUP (OCCUPD = log OCCUP * NOPRO)
WAGED - Slope dummy variable for WAGE (WAGED = log WAGE* NOPRO)
NHOURSD - Slope dummy variable for NHOURS (NHOURSD = log NHOURS * NOPRO).

To test the null hypothesis that ownership type has no effect on operating costs, a regression is estimated with a dummy variable to denote NOPRO legal status. As Regression 1 in Table 4 indicates, the coefficient for this variable is not statistically significant (i.e., a NOPRO home cannot be shown to have a measurably higher cost). A second regression is then estimated that allows the slope coefficients of the three significant nonbinary variables, OCCUP, WAGE, and NHOURS, to differ by ownership type. This is similar (but not identical) to stratifying the two types of nursing homes by ownership and using a Chow test to measure the difference between NOPRO/FOPRO types. (A Chow test of the stratified equations was also performed that suggested that the NOPRO/FOPRO coefficients are not statistically different.) The T-values in Regression 2 indicate that the three slope dummy variables are insignificant, again implying that NOPRO status does not increase costs. These findings are consistent with the hypothesis that the costs of the two ownership types have converged. The above regressions do not address the extent to which the absence of a cost differential is attributable to the effects of competition.

Table 4

REGRESSION OF TOTAL OPERATING COST ON THE INDEPENDENT VARIABLES
1982

Variable	(1)	(2)	(3)	(4)
Constant	8.76179	8.81333	8.17901	7.27502
OCCUP	0.47536*	0.52000*	0.54298**	0.01338
	(3.320)	(3.380)	(1.922)	(0.022)
OCCUPD		-0.42654		
		(0.637)		
WAGE	0.59624*	0.58682*	0.64797*	0.76028*
	(6.950)	(6.692)	(4.426)	(3.615)
WAGED		0.01777		
		(0.572)		
NHOURS	0.25028**	0.28474**	0.32610**	0.41291
	(2.315)	(2.395)	(1.904)	(1.472)
NHOURSD		-0.15878		
		(0.732)		
PT	-0.01537	-0.01423	-0.04303	0.02246
	(0.661)	(0.609)	(1.221)	(0.350)
PRIV	-0.00889	-0.00758	0.00309	-0.13485**
	(0.385)	(0.326)	(0.088)	(1.904)
BEDPD	0.01941	0.01916	0.02713	0.16726***
	(0.785)	(0.769)	(0.739)	(1.704)
SEMIAMB	0.03567	0.03691	0.09428	0.06559
	(0.520)	(0.534)	(0.935)	(0.351)
B1	-1.49855*	-1.50214*	-1.46817*	-1.19060*
	(22.533)	(22.393)	(14.338)	(5.483)
B2	-0.91101*	-0.90572*	-0.90870*	-0.81865*
	(18.726)	(18.492)	(10.763)	(5.360)
B3	-0.41932*	-0.41718*	-0.37771*	-0.46956*
	(7.911)	(7.827)	(4.263)	(2.631)
SKILL	0.21746*	0.21541*	0.18207*	0.44758*
	(4.017)	(3.961)	(2.357)	(2.466)
ACRD	0.01686	0.01207	0.06404	-0.28644***
	(0.304)	(0.216)	(0.801)	(1.704)
MGMT	0.02138	0.02026	0.02933	-0.00972
	(0.497)	(0.469)	(0.454)	(0.058)
NOPRO	-0.02277			
	(0.443)			
R^2	0.87	0.87	0.85	0.92
SSR	8.76179	8.81333	5.49063	1.58855
N	216	216	102	34

1 All non-binary variables are in natural log form.
2 T-values are in parentheses under the coefficient values.
3 * Significant at the one percent level, ** significant at the five percent level, and *** significant at the ten percent level.

We then separate nursing homes according to whether they exist in more or in less competitive markets. More (less) competitive markets are defined as those three-digit zip code areas with more (less) than fifteen nursing homes, greater (smaller) than seventy percent FOPRO market share, and a Herfindahl index lower (higher) than 0.08. (For an alternative use of the Herfindahl index, see Held and Pauly, 1983.) The definitions and reasons for choosing these particular measures are presented below. Homes in areas that do not meet these requirements are removed from the analysis to provide an accurate test of the competition hypothesis. Additional equations (3 and 4) are then estimated. The equation based on the combined data is not shown. Stratification, rather than slope interaction terms, is used to provide the reader with visual evidence of the difference in coefficients. A Chow test is then conducted to explore the null hypothesis that no cost difference exists between homes in competitive areas and those in less-competitive areas. This produces an F-value of 1.8 and rejection of the null hypothesis at a five percent level of significance. This supports the findings of Held and Pauly (1984)) and the hypothesis that competition influences nursing home costs.

Implications

The above findings provide insights for students of both nursing home economics and property-rights theory. At a minimum, they suggest that NOPRO/FOPRO cost differences cannot be assumed to exist simply because of the presence of different ownership forms. A stronger interpretation raises a question as to whether property-rights theory can consistently explain cost differences among nursing homes if substantial competition from FOPROs is present. Earlier studies may have found ownership significant because these studies failed to recognize differences in the competitive environment in which nursing homes operated or because these studies were conducted in areas where limited FOPRO competition existed. Further study of the competitive context in which nursing homes operate is warranted if relative cost differences are to be better understood.

Our results have several other implications. First, they explain the diversity of findings with respect to the effects of ownership on cost by introducing industry structure as a variable. It may be that the studies that found significant ownership differences involved geographical units with the limited FOPRO competition, while those finding no difference involved areas with strong FOPRO competition. It may also be that in areas where buyer demand greatly exceeded supply, divergences due to ownership type persisted. These possibilities warrant further study.

The analysis also suggests that it is not necessarily true that greater efficiencies can be achieved by limiting the special advantages provided to NOPROs. Instead, efficiencies may be achieved by opening the nursing industry to competition and allowing FOPROs to impose "discipline" on NOPRO costs. An implication is that overly stringent CON restrictions can be counterproductive, especially in states with large NOPRO/FOPRO cost differences.

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ESTIMATING THE COST OF INDIGENT HEALTH CARE

*Kenneth J. Burns and Karen L. Pickerill**

Introduction

Current interest in the issue of indigent care has highlighted a problem that has been steadily escalating for the past decade. The cost of indigent care across the nation has been steadily rising, but the estimates of these costs vary widely and create confusion about the true magnitude of the indigent-care burden. For example, the estimates of the indigent-care burden in Tennessee during 1984 ranged from $98 to $775 million (*The Commercial Appeal*, 1986).

Although health care has essentially become a merit good, the actual implementation of policies to compensate the hospital industry for undertaking the indigent-care burden must rely on accurate estimates of the magnitude of the problem. In this article, we address some issues regarding the manner in which uncompensated-care costs are estimated. We also provide examples of the consequences of utilizing inaccurate cost estimates and band-aid policies to alleviate the indigent-care burden.

The wide range of uncompensated-care cost estimates reflects two estimation problems. First, who should be defined as indigent? Uncompensated care can be defined to include not only indigent care, but underinsured patient charges and bad debt. The size of the estimated indigent-care burden varies according to the categories of uncompensated care that are included in the estimated value. The purpose of this article is not to delve into the question of who to categorize as indigents. Even if legislators agree that indigent-care costs should include underinsured patient charges and bad debt, a second estimation problem still exists. This problem occurs because the method utilized by hospital industry officials to calculate the size of the indigent-care burden employs aggregated data to estimate a value that is actually a function of the unique cost conditions of each hospital.

In lobbying legislatures to provide support for indigents, industry spokesmen have estimated the cost of indigent care by aggregating revenue and cost data across all hospitals. They conclude that hospital service costs tend to be some fixed proportion of revenues, and this proportion has been estimated to be approximately seventy-five percent (*The Commercial Appeal*, 1986). For example, if the hospital industry is generating $1 billion in potential annual revenues from nonpaying patients, and uncompensated-care costs are estimated to be seventy-five percent of annual revenues, the estimated cost of uncompensated care is $750 million. Although the magnitude of the proportion used to make this estimate is unimportant, the logical basis, or lack of a logical basis for linking revenues to indigent-care costs is important.

If indigent-care costs are defined as that amount of revenue not collected from patients who do not pay, or only partially pay, use of an aggregated value such as the example given above may overlook an important aspect of the hospital industry's structure. Public payments for indigent care do not accrue to the whole hospital industry; they are paid to the individual institution that delivers the services. Unless it can be assumed that individual health-care facilities are homogeneous with respect to their costs and pricing policies, any attempt to measure indigent-care costs through the use of aggregate estimates will lead to inaccurate information on the true outcome of the indigent-care problem.

The health-care industry does exhibit some similarities across facilities due to the nature of services provided and the lumpy nature of its capital improvements. Although some departments within a hospital do not directly generate patient revenues, they are vital to the operation of the facility. The cost of operating these departments must therefore be distributed across those departments that generate patient revenues. These costs from nonrevenue-generating departments must be allotted in a manner that is consistent with the cost of providing a revenue-generating service. For example, the cost of providing housekeeping and laundry services must be allocated to departments that generate patient revenues, such as x-ray, orthopedics, and surgery.

In order to maintain the facility's capital plant and to provide funds for upgrading the plant and for purchasing new technologies, hospitals must add another charge to revenue-generating departments.[1] This surcharge is important because it provides a fund for future capital improvements. Capital improvements in health-care facili-

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ties tend to take place in large blocks, such as the purchase of a new CAT scanner. In for-profit hospitals, a portion of this surcharge may be classified as the "profit" or return on investment for investors. So, by the very nature of hospital services and maintenance, there exists a confusion about the actual cost of providing a service, the inclusion of profits in patient service charges, and the appropriate price to charge for a patient service. Unless the manner in which the costs for nonrevenue-generating departments and capital funds are distributed in the same manner across patient services, and across facilities, use of an aggregate measure of uncompensated-care cost provides misleading information.

Review of Previous Studies

The uniqueness of the individual health-care facility is well documented in economic literature on cost-shifting. The following literature review is not intended to be comprehensive, but to merely provide insight into the spectrum of potential differences that exist in cost and pricing policies from one facility to another and from one department to another within a facility. Although the assumption of a fixed ratio of service costs to price is implied when utilized to estimate indigent-care costs, several authors have determined that the cost-to-charge ratio is sensitive to the method of patient payment, to the regulatory environment in which the facility operates, to the internal structure of the individual facility, and to the facility's profit orientation.

Keating (1984) found that a significant difference existed between the ratio of costs-to-charges for services primarily paid by third-party full-compensation plans and government funds, and those primarily paid by individuals or less-than-full-cost insurance plans. Because hospitals incur relatively large amounts of fixed costs relative to variable costs per service, Keating said that it was likely that hospitals charged off the larger proportion of fixed costs to those services that were most likely to be paid in full by either private or governmental insurance.[2] The prices charged for those services were less likely to accurately reflect the true cost of that individual service, and the cost of services less likely to be paid in full were shifted over to those services that were utilized more heavily by fully-compensated patients.

Foster's (1985) theoretical model also indicates a relationship between prices charged to private individuals and the level of government reimbursement. The source of revenues received for a service determines the amount of costs from nonrevenue-generating departments that are allocated to the cost of a patient service.

Finally, Harris (1979) also noted that the current structure of patient-service reimbursement was probably the major reason for differential cost-to-charge ratios across services. Those patient services that have higher proportions of patients paying by third-party insurers have lower cost-to-charge ratios, because the probability of receiving full payment for charges is greater for those patients. These patients are thus paying a larger proportion of the costs for nonrevenue-generating services than patients paying by other means.

Pattison and Katz (1983) discovered that for-profit hospitals had higher costs and charges than not-for-profit hospitals, and a distinct difference existed in the cost-to-charge ratio among individual hospital services within each category of hospitals.[3] Although the proportion of Medicare patients served was not shown to be significantly different by classification of hospital, it was observed that certain types of services exhibited higher markups than others for both not-for-profit and for-profit hospitals. Additionally, the authors found evidence that the average profit per service was higher in for-profit hospitals and that ancillary services had the highest degree of utilization in for-profit hospitals. Investor-owned hospitals were therefore better able to maximize profits by using aggressive pricing strategies and different styles of medical practice than the nonprofit hospitals.

Hence, the evidence seems to indicate that the hospital industry is already shifting the fixed costs of operation to those patients with the highest certainty of paying. The industry also is shifting costs away from services with a smaller probability of payment—those used most often by underinsured and cash-payment patients. The cost of indigent care, though, is based upon the price of all services consumed by an indigent patient, so within the "cost" of indigent-care services are fixed costs that are already being shifted toward full-paying customers.

Coyte (1986) utilizes a model, which outlines several alternative regulatory environments, to determine the nature of hospital costs. He found that some policies designed to lower the average cost of hospital services were actually causing increases. Therefore, even if the cost-to-charge ratio was constant across states, the regulatory environment of the state would determine the actual level of indigent-care costs.

The Relationship Between Revenues and Costs

Although there exists a relationship between costs and revenues in any enterprise, we believe the hospital industry could garner increased support for uncompensated losses by improving its methods of reporting costs and revenues. As stated by Keating (1984), the methodology for allocating costs to hospital services is primarily an ad-hoc means of allocating fixed costs to the individual departments within the hospital.[4] An implication of a constant ad-hoc relationship between revenue and cost is that no matter how much revenue is generated by a hospital, cost will increase by some percentage of every dollar of revenue generated. In other words, this definition dispels the existence of fixed costs, and as a result, all costs become a direct function of number of patients served and of total revenues collected.

In all industries, some proportion of total cost is fixed. Because providing care for indigents will not affect the level of fixed costs, it is unlikely that public officials will allow hospitals to charge off a portion of those fixed costs to indigent hospital bills. Variable costs, on the other hand, are directly related to the hospital's indigent-care

MID-SOUTH ECONOMY

BUREAU OF BUSINESS & ECONOMIC RESEARCH THE FOGELMAN COLLEGE OF BUSINESS AND ECONOMICS MEMPHIS STATE UNIVERSITY

STATISTICAL SUPPLEMENT: THE MID-SOUTH ECONOMY

The five-year expansion in economic activity continues to surprise most economic observers. Despite a moderate acceleration in consumer prices, the nation's real Gross National Product (GNP) rose 2.2 percent in the first quarter of 1987 compared to first quarter 1986 and has maintained a 2.6 percent annual growth rate for the last two years. Industrial production climbed 1.3 percent above year-ago levels, and the capacity utilization rate remains stable at 79.9 percent.

Real disposable income increased at an annual rate of 1.0 percent for the first three months of 1987, and the nation's personal savings rate increased slightly. Corporate profits remain robust, and gross private domestic investment registered a 1.4 percent gain during the first quarter of 1987 with solid gains in the residential and producers' goods sectors.

While spot commodity prices have been rising for the past six months, producer prices for sensitive materials have declined. The overall yearly gain in producer prices was a modest 1.2 percent. The first quarter gain in real GNP, for the most part, resulted from an inventory build-up in the farm and automotive sectors. With the exception of net exports, the major components of final sales actually registered a decline. The gain in net exports was primarily due to a decline in imports. Overall, exports fell during the first quarter.

Personal consumption expenditures (a broader measure of consumer spending than retail sales) also declined slightly due to reduced automotive expenditures. Consumer spending for durable goods has declined for the past two quarters, while spending on nondurable goods increased a moderate 1.0 percent. While the foreign trade deficit has been narrowing since the third quarter of 1986, the deficit remains $9.0 billion above year-ago levels, primarily due to the fact that while real exports rose 4.1 percent above first quarter 1986 levels, real imports rose only 4.7 percent.

For the Mid-South states, the economic expansion has slowed with the rise in personal income accounting for half the national gain. Tennessee was the only Mid-South state to exceed the nation's gain of 4.4 percent. Compared to last April, sales tax collections across the Mid-South are robust. However, the year-to-date gains are modest, reflecting the general slowdown in retail sales. One positive sign has been the moderate growth in the Mid-South's civilian labor force, up 0.2 percent from last April. Coupled with a solid decline in the number of persons unemployed, the unadjusted aggregate unemployment rate registered a decline of one percentage point to stand at 8.8 percent for April 1987, the lowest rate in five years.

Unemployment rates for Mid-South metropolitan areas are generally lower with Birmingham at 8.7 percent, Little Rock at 7.4 percent, New Orleans at 11.3 percent, Jackson at 8.6 percent, and Memphis at 6.4 percent. The Mid-South agricultural sector is improving slightly with farm incomes rising and overall prices received by farmers gaining 4.9 percent from last May. However, the gain was primarily attributable to a solid gain of 14.5 percent in livestock prices compared to a 6.1 percent decline in crop prices.

LABOR

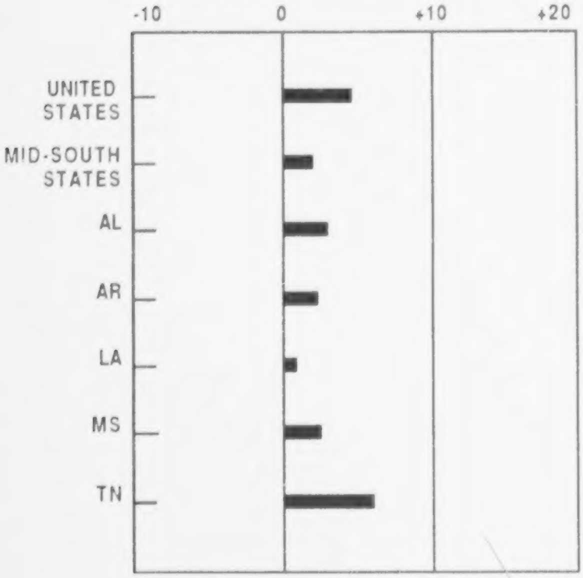
The Mid-South states have registered substantial declines in the number of persons unemployed, resulting in across-the-board declines in their respective unemployment rates. Louisiana continues to record the highest unemployment rate at 12.0 percent, while Tennessee recorded the lowest rate at 6.9 percent. Except for Louisiana, the Mid-South states experienced solid gains in total nonagricultural employment with an overall gain of 1.1 percent.

Manufacturing employment registered a slight gain of 0.5 percent despite moderate declines in Alabama and Louisiana. Arkansas registered the best gain, up 1.7 percent from last April. Moderate declines in manufacturing employment were also registered in the metropolitan areas of Birmingham, Little Rock, and New Orleans. Manufacturing employment in the durable goods sector remained unchanged despite gains in Arkansas and Tennessee, while employment in nondurable goods rose a modest 0.6 percent. Arkansas and Mississippi accounted for most of the gain.

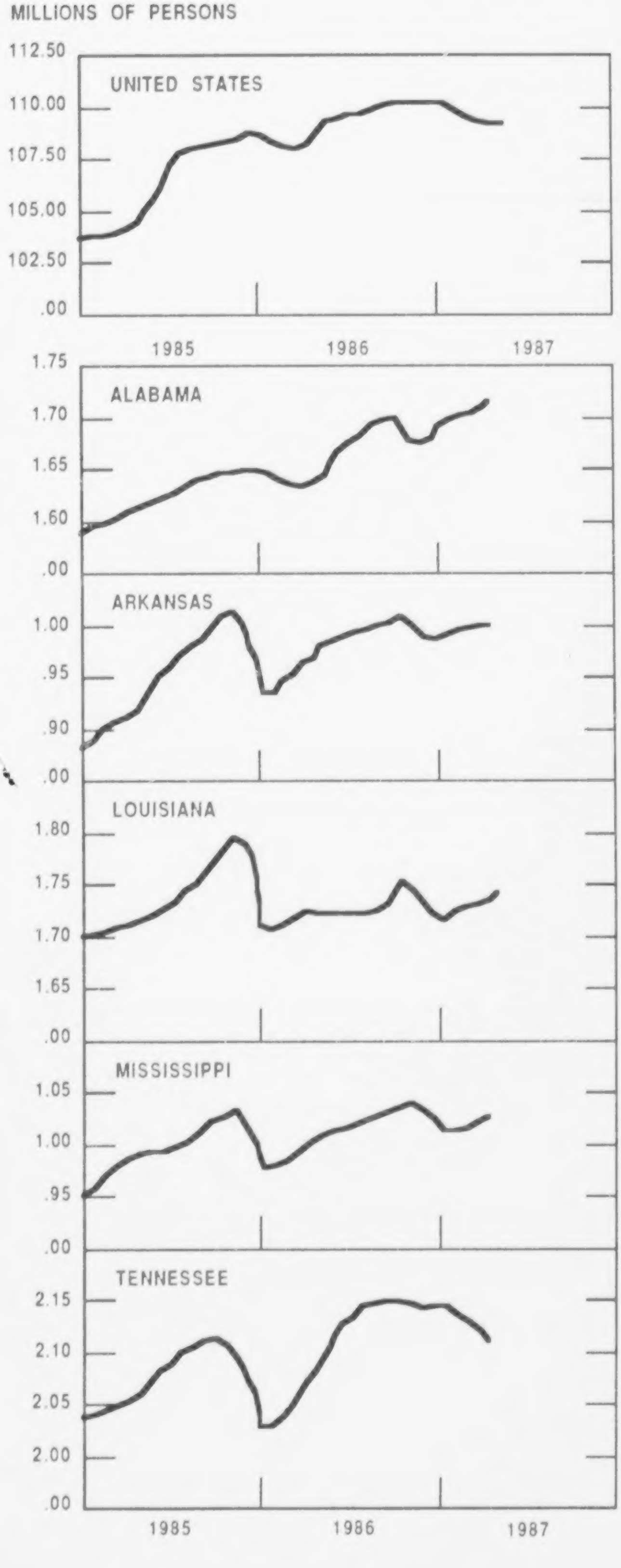
In terms of industries, transportation equipment had a net gain of 3,300 jobs, while the lumber/furniture sector registered a net gain of 5,400 jobs. Metals and machinery were net losers with the fabricated metals sector off 1,600 jobs and nonelectrical machinery off 2,900 jobs. On the nondurable side, textile employment gained 3,400 jobs, food employment climbed 4,900, and printing/publishing

PERSONAL INCOME - II QTR. 1987

PERCENTAGE CHANGE FROM 1986

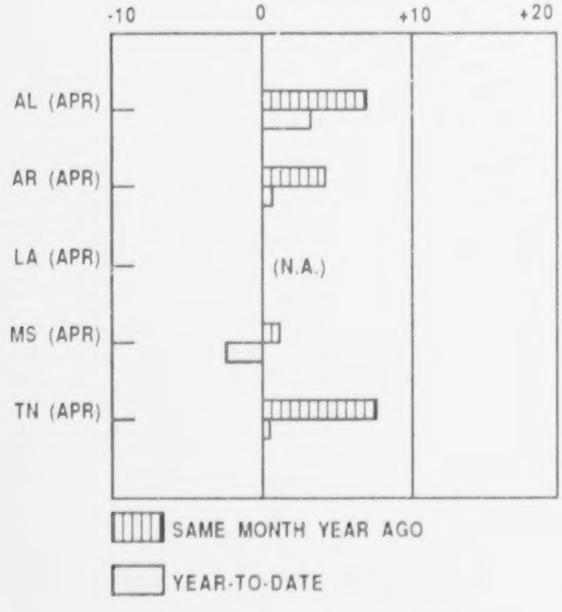


TOTAL EMPLOYMENT



SALES TAX COLLECTIONS 1987

PERCENTAGE CHANGE FROM 1986



SOURCE: BUREAU OF ECONOMIC ANALYSIS
STATE DEPARTMENTS OF EMPLOYMENT
SECURITY AND REVENUE

grew by 900 jobs. Net losses were recorded in chemicals, paper, and apparel.

On the nonmanufacturing side, the service sector continues to account for half of the new jobs created. The net gain in service employment across the Mid-South totaled 41,000 over last April, while retail and wholesale trade employment combined added only 24,200 jobs. Government employment registered a net gain of 11,500 with finance, insurance, and real estate recording a modest gain of 6,400 jobs.

Recent data released by the Bureau of Labor Statistics indicated that, for the first time since 1950, manufacturing productivity in the U.S. between 1985 and 1986 recorded a larger percentage gain than did nine other countries considered. Productivity climbed 3.5 percent from 1985 to 1986, and while the U.S. increase was less than in 1985, it was well above the historical trend rate. Productivity rose slightly less than 3.0 percent in Japan and the U.K., and between 1.0 and 2.0 percent in France, Germany, Italy, and Sweden.

Countries that registered declines in productivity were Canada, Denmark, and Norway. The U.S., along with Italy, also had the largest increase in manufacturing output. However, U.S. manufacturing employment declined slightly for the second consecutive year, whereas Canada, Denmark, Germany, and Norway recorded employment gains in both years. Finally, compared to the peak employment year of 1979, the U.S., France, Germany, Italy, Norway, and Sweden were 10.0 to 15.0 percent below the peak in 1986. The U.K. was more than 25.0 percent below, while Canada, Japan, and Denmark managed to register gains near 10.0 percent.

CONSTRUCTION

For the twelve months ending February 1987 compared to the same period in 1986, the dollar value of total building activity fell 6.6 percent in the U.S. due to a 30.6 percent decline in nonresidential building activity. Office and industrial building continues on a downward trend along with petroleum exploration and drilling activities. Office building registered gains in Alabama and Mississippi, while Alabama was the only Mid-South state to register a gain in industrial building. Stores and hospitals recorded solid gains in most of the Mid-South states, with schools gaining only in Alabama. Louisiana experienced declines in all categories of nonresidential activity.

The dollar value of residential building activity rose 12.6 percent in the U.S., but the number of dwelling unit permits fell 1.9 percent. Residential building activity

	United States	Mid-South States				
LABOR	(March)	Alabama (April)	Arkansas (April)	Louisiana (April)	Mississippi (April)	Tennessee (April)
Civilian Labor Force	118,347,000	1,863,600	1,067,400	1,922,300	1,145,400	2,319,400
Percent Change Year Ago	+1.7	- 0.3	+ 0.1	- 3.4	- 0.8	+ 2.0
Unemployed	7,306,000	152,300	85,400	230,000	106,600	159,100
Percent Change Year Ago	-9.9	-15.2	- 7.1	- 9.1	-19.3	-13.2
Unemployment Rate						
1987	6.2	8.2	8.0	12.0	9.3	6.9
1986	7.0	9.6	8.6	12.7	11.4	8.1
Non-Agricultural Wage & Salary Employees	102,026,000*	1,480,300	832,300	1,489,600	860,900	1,993,700
Percent Change Year Ago	+2.6	+ 1.2	+ 2.5	- 2.9	+ 1.6	+ 4.3
Manufacturing Employment	19,190,000*	355,000	214,800	165,500	222,800	494,000
Percent Change Year Ago	-0.3	- 1.0	+ 1.7	- 0.3	+ 0.7	+ 0.5
Non-Manufacturing Employment	82,836,000*	1,125,300	617,200	1,324,100	638,100	1,499,700
Percent Change Year Ago	+3.2	+ 1.9	+ 2.7	- 3.2	+ 2.0	+ 5.6
Average Weekly Earnings of Production Workers in Manufacturing	$402.87	$354.44	$319.59	$449.45	$297.86	$359.16
Percent Change Year Ago	+1.8	+ 0.7	+ 3.6	+ 3.4	- 0.4	+ 3.4
Average Weekly Hours of Production Workers in Manufacturing	40.9	40.6	40.2	41.5	39.4	40.4
Percent Change Year Ago	+0.5	0.0	0.0	+ 1.2	- 2.0	- 1.5
Average Hourly Earnings of Production Workers in Manufacturing	$ 9.85	$ 8.73	$ 7.95	$ 10.83	$ 7.56	$ 8.89
Percent Change Year Ago	+1.3	+ 0.7	+ 3.6	+ 2.2	+ 1.6	+ 4.9

*Seasonally adjusted.

Source: Departments of Employment Security and Survey of Current Business.

climbed substantially in Alabama and Tennessee, with Mississippi registering a moderate decline of 4.6 percent. Overall, the total number of dwelling units declined 12.6 percent in the Mid-South, but single-family units gained a modest 3.9 percent. Multi-family units fell from an annual total of 38,100 in February 1986 to 25,700 units in February 1987.

Construction employment across the Mid-South remained virtually unchanged from last February, gaining only 400 jobs. Tennessee registered the largest gain, up 10.6 percent, while Alabama was the only other Mid-South state to register a positive gain (1,000 new jobs). Arkansas, Louisiana, and Mississippi experienced declines in construction employment. On the construction cost side, producer prices for construction materials rose only 1.2 percent above last February, and the index for construction costs, a broader measure, rose only 0.2 percent from its year-ago mark.

The importance of the federal budget in financing construction activity has been declining since 1981. In fiscal year 1981, federal construction expenditures were equal to 22.0 percent of the total value of new construction put in place, but by FY 1986, it was equal to only 13.0 percent. The trends in federal construction activity have varied widely among programs and categories. For example, in FY 1987, construction spending will increase for conservation and housing but will decline for highways and sewage-treatment facilities. For FY 1987, in addition to the $48.1 billion in construction-related expenditures, there is $102.7 billion in construction-related loan guarantees and $159.1 billion in housing credit authority. The administration-proposed budget for FY 1988 currently represents a decline of 7.0 percent over FY 1987. The FY 1988 budget includes expenditures for thirty-seven direct construction programs, twenty-nine loan programs, and twenty construction-related loan guarantee programs.

FINANCE

The combination of low inflationary expectations and moderate economic growth has caused interest rates to remain relatively stable. The average prime rate charged by banks is 7.5 percent with the thirteen-week Treasury Bill at 5.6 percent. The Federal Home Loan Bank's mortgage rate was 9.2 percent in March compared to a 10.2 percent rate last September. One-year Treasury bonds and commercial bank certificates of deposit are slightly higher than this time last year with triple A corporate bonds lower. And, despite a 7.0 percent decline in the trade-weighted value of the U.S. dollar, the U.S. interest rate compares favorably with that of other trading partners. Currently, the U.K. and Italy have short-term rates around 10.0 percent with the U.S., Canada, and France in the 7.0 to 8.0 percent range. Japan and Germany continue to experience significantly lower rates at 4.0 percent.

While the federal budget deficits command most of the attention, an ancillary issue involves the gross public debt of the U.S. Treasury. For 1986, gross public debt exceeded

CONSTRUCTION[1] FEBRUARY 1987	United States	Mid-South States				
		Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Total Building Percent Change Year Ago	- 6.6	+ 7.3	N.A.	-49.6	-11.8	- 1.9
Residential Building Percent Change Year Ago	+12.6	+19.8	N.A.	-27.9	- 4.6	+14.8
Non-Residential Building[2] Percent Change Year Ago	-30.6	- 3.9	N.A.	-62.7	-20.2	-24.0
Total Dwelling Units Percent Change Year Ago	- 1.9	+ 6.7	N.A.	-39.4	-11.9	+19.1

[1] Twelve-month cumulative rate.

[2] Non-residential data exclude the cost of construction for publicly-owned buildings.

Source: The Federal Reserve Bank of Atlanta from data supplied by the Bureau of Census.

FINANCE FEBRUARY 1987	United States	Mid-South States	Alabama	Arkansas	Louisiana	Mississippi	Tennessee
Member Banks as of 3/5/87 Percent Change from Comparable Date 1986							
Total Deposits	+10.2	+ 7.7	+15.7	N.A.	+ 1.1	+ 5.0	+11.3
Demand Deposits	+13.2	+ 4.3	+ 9.6	N.A.	- 1.9	- 3.5	+11.6
Time Deposits	- 0.6	+ 1.2	+ 9.8	N.A.	- 6.3	+ 0.2	+ 4.1
Savings Deposits	+18.8	+15.5	+21.2	N.A.	+11.8	+16.0	+16.3

Source: The Federal Reserve Bank of St. Louis and the Federal Reserve Bank of Atlanta.

SAVINGS AND LOAN ACTIVITY	Alabama	Arkansas	Louisiana	Mississippi	Tennessee[1]
Mortgage Loans Made (millions) Percent Change Year Ago Percent Change Year-to-Date	CHANGE IN DATA REPORTING FORMAT. NO COMPARABLE DATA AVAILABLE FOR THIS REPORT.				

[1] Figures are for total loans made.

Source: Federal Home Loan Banks of Little Rock, Cincinnati, and Atlanta.

$2.2 trillion with three-quarters of the debt considered marketable or interest-bearing debt. Private investors in the U.S. hold 72.3 percent of the debt, while foreigners hold approximately 11.6 percent. Other government agencies and the Federal Reserve hold the rest. Moreover, since 1983, the gross public debt has grown 57.0 percent with the 1985-86 increase at 13.8 percent.

HOUSING (SHELBY COUNTY)

During the first quarter of 1987, total housing starts and sales were up dramatically from their levels of a year ago.

Total starts for the first quarter of 1987 were up 188.8 percent over the first quarter of 1986. Gains in all categories included a single-family increase of 49.6 percent. Duplex starts increased from 4 in the first quarter of 1986 to 30 in the first quarter of 1987. Apartment (condominium and townhouse included) starts for the corresponding period increased 613.7 percent.

Though starts were up, total permit applications during the first quarter of 1987 dropped slightly. The decrease in permits can be attributed to a decline of 36.5 percent in apartment permits, while single-family and duplex permits issued during the first quarter increased from the levels of a year ago.

The number of sales and the average sales price of new single-family homes and condominiums increased. The sales of new condominiums increased 2.7 percent with a corresponding sales price increase of 8.0 percent during the first quarter of 1987 when compared to the first quarter of 1986. Single-family sales registered an 82.5 percent increase with a corresponding average sales price increase of 20.4 percent for the same period.

The number of real estate transfers increased 8.7 percent compared to first quarter 1986. The total dollar amount of transfers for the first quarter of 1987 increased 51.0 percent over first quarter 1986 levels. As prices and sales increased, so did foreclosures with a 10.6 percent jump over the same period.

Housing permits for the incorporated portions of Shelby County (excluding Memphis and Germantown) totaled 254 for the first quarter of 1987. All the permits were for single-family dwelling units. The majority of first quarter housing activity in incorporated areas was in Bartlett and Collierville.

While the increase in apartment starts in the first quarter may be attributed principally to one major development (and thus may be discounted for trend analysis), the increase in single-family housing construction, sales, and sales prices seems to be indicative of a healthy single-family housing growth trend.

THE TENNESSEE ECONOMY

The Tennessee economy remains comparatively robust. The state's unemployment rate is at a six-year low at 6.9 percent, and the growth in total personal income continues to outpace the national gain. The total number of persons unemployed declined substantially from last April's count, with total nonagricultural employment increasing 4.3 percent. These two factors combined to offset a solid advance in the state's civilian labor force which now totals 2.3 million workers. And, while the dollar value of total building activity fell 1.9 percent, the decline was less than the national decline due to a 14.8 percent gain in residential building activity. Sales tax collections rose 8.4 percent over last April, but remained virtually unchanged on a year-to-date basis, primarily due to the sluggish activity in retail sales. All the metropolitan areas experienced declines in their respective unemployment rates. However, manufacturing employment in the metro areas recorded moderate declines across the board.

Total nonagricultural employment advanced 82,600 jobs over last April with manufacturing registering a moderate gain of 2,500 jobs. On the nonmanufacturing side, trade (retail and wholesale) employment climbed 25,700 jobs with service employment up 28,600 jobs. Government employment recorded a solid gain of 13,800 jobs from a year ago. The moderate declines in manufacturing employment for Tennessee's metropolitan areas were generally offset but had solid gains in nonmanufacturing employment.

While the composition of employment continues to drift towards the nonmanufacturing side, the composition of employment between Tennessee's metropolitan and nonmetropolitan counties varies significantly. For the most part, agricultural and manufacturing employment represents a much larger portion of total employment in nonmetropolitan counties, with manufacturing accounting for approximately one out of every three jobs. By comparison, manufacturing accounts for about 17.0 percent of jobs in metropolitan areas. Despite declining farm employment between 1982 and 1986, manufacturing employment in Tennessee's nonmetropolitan areas grew at an average

Table 1

SHELBY COUNTY HOUSING INDICATORS, FIRST QUARTER, 1986-1987

Items	First Quarter		Year-to-Date		Percent Change Year-to-Date 1987 From Year-to-Date 1986
	1987	1986	1987	1986	
NEW RESIDENTIAL UNITS					
Total Permits Issued[1]	1,896	2,340	1,896	2,340	- 19.0
Single-Family	935	859	935	859	8.8
Duplex	20	—	20	—	100.0
Apartments[2]	941	1,481	941	1,481	- 36.5
Total Starts[1]	2,602	901	2,602	901	188.8
Single-Family	1,016	679	1,016	679	49.6
Duplex	30	4	30	4	650.0
Apartments[2]	1,556	218	1,556	218	613.7
Sales Closed					
Single-Family (New)	1,223	670	1,223	670	82.5
Condominium	37	36	37	36	2.7
Average Sales Price					
Single-Family (New)	$115,602	$ 95,994	$115,602	$ 95,994	20.4
Condominium	$ 68,335	$ 63,282	$ 68,335	$ 63,282	8.0
REAL ESTATE TRANSFERS					
Number	4,988	4,587	4,988	4,587	8.7
Amount (000)	$559,382	$370,430	$559,382	$370,430	51.0
NUMBER OF MORTGAGE FORECLOSURES	460	416	460	416	10.6

[1] Expressed in number of dwelling units.

[2] Apartments include condominiums and townhouses.

Table 2

RESIDENTIAL BUILDING PERMITS AND STARTS, INCORPORATED AREAS (EXCLUDING MEMPHIS AND GERMANTOWN)[1] IN SHELBY COUNTY, FIRST QUARTER, 1987

Area	Permits			Starts		
	Single-Family	Duplex[2]	Apartments[2]	Single-Family	Duplex[2]	Apartments[2]
Bartlett	138	—	—	138	—	—
Arlington	2	—	—	2	—	—
Millington	14	—	—	14	—	—
Collierville	94	—	—	94	—	—
Lakeland	6	—	—	6	—	—
Total	254	—	—	254	—	—

[1] Due to local government consolidation between Memphis and Shelby County, residential permits and starts cannot be separately identified for the municipalities of Memphis and Germantown. The statistical data for these two municipalities are included in the data for unincorporated Shelby County.

[2] Number of dwelling units.

Table 3

INVENTORY OF UNSOLD SINGLE-FAMILY HOUSING UNDER CONSTRUCTION AND NEW HOUSING, SHELBY COUNTY, TENNESSEE, FIRST QUARTER 1987

	Summary of Uncompleted Houses						Summary of Completed Houses					
	Days Since First Inspection						Days Since Final Inspection					
Square Feet	<30	30-60	60-90	90-180	>180	Total	<30	30-60	60-90	90-180	>180	Total
Under 1,000	6	25	3	12	15	61	14	15	8	1	66	106
1,000 - 1,200	10	13	5	34	35	97	22	7	2	16	68	115
1,200 - 1,400	18	28	18	81	62	207	22	5	13	15	130	185
1,400 - 1,600	20	41	48	126	100	335	8	14	9	11	155	197
1,600 - 1,800	26	37	45	109	104	321	22	12	17	8	82	141
1,800 - 2,000	25	37	33	103	96	294	19	20	22	8	96	165
2,000 - 2,200	28	22	22	70	86	228	24	28	22	19	93	186
2,200 - 2,400	26	22	29	59	84	220	20	26	19	19	90	174
2,400 - 2,600	41	40	28	92	85	286	25	38	24	30	96	213
2,600 - 2,800	20	34	22	54	71	201	21	20	18	11	61	131
2,800 - 3,000	16	23	11	51	54	155	13	7	9	9	46	84
3,000 - 3,200	20	21	11	35	36	123	10	11	8	5	38	72
3,200 - 3,400	6	10	6	26	25	73	7	4	4	6	16	37
3,400 - 3,600	9	5	4	20	25	63	4	4	—	5	31	44
3,600 - 3,800	4	4	3	18	27	56	3	2	—	1	14	20
3,800 - 4,000	—	2	3	14	21	40	3	3	4	2	19	31
Over 4,000	27	22	21	54	70	194	17	11	8	2	67	105
Total	302	386	312	958	996	2,954	254	227	187	168	1,170	2,006

Source: K. William Chandler, Housing Inventory.

Table 4

SALES OF EXISTING AND NEW SINGLE-FAMILY RESIDENTIAL UNITS AND DUPLEXES, MEMPHIS AND SHELBY COUNTY, TENNESSEE, FOURTH QUARTER, 1968-1987, AND ANNUAL SUMMARY, 1968-1986

	Total Dollar Volume All Price Ranges (Millions)		Number of Units Sold		Average Sale Prices All Units	
Year	1st Quarter	Annual	1st Quarter	Annual	1st Quarter	Annual
1968	$ 36.9	$ 187.8	2,280	11,517	$16,184	—
1969	45.7	204.8	2,724	11,851	16,776	$17,281
1970	41.4	201.1	2,374	11,264	17,438	17,853
1971	50.7	273.1	2,664	13,727	19,031	19,895
1972	68.2	N/A	3,267	N/A	20,875	N/A
1973	79.3	396.3	3,413	15,278	23,234	25,939
1974	81.7	395.0	3,048	13,789	26,804	28,646
1975	63.3	401.6	2,167	12,942	29,210	31,031
1976	97.2	493.7	3,106	14,985	31,294	32,946
1977	120.0	537.5	3,541	14,700	33,889	36,565
1978	132.6	739.4	3,614	18,359	36,691	40,274
1979	153.9	819.3	3,749	18,371	41,051	44,597
1980	143.2	739.7	3,125	15,248	45,824	48,511
1981	136.3	605.1	2,762	11,455	49,457	52,824
1982	107.3	518.7	2,006	9,590	53,507	54,088
1983	145.5	791.1	2,735	13,684	56,856	57,810
1984	183.5	914.8	3,116	15,074	58,875	60,689
1985	207.8	1,091.7	3,415	17,123	60,835	63,488
1986	235.7	1,339.4	3,599	18,789	65,488	70,739
1987	277.6	—	3,746	—	74,109	—

Source: K. William Chandler, Residential Sales Report.

annual rate of 1.6 percent compared to a 0.6 percent gain in metropolitan areas, a 1.0 percent gain across the state, and a slight gain of 0.4 percent nationally. One contributing factor in the success of Tennessee's nonmetropolitan areas has been the renewed spirit of community cooperation and the persistence of industrial development boards and local officials in recruiting new businesses. The nonmetropolitan counties of Dyer, Greene, Putnam, and Roane have experienced noteworthy success in attracting industry to their areas. In terms of industries over this three-year period, major gainers in the durable goods sector were transportation equipment, lumber, and furniture with the major losers being primarily metals and electric/electronic machinery. On the nondurable side, the major gainers were the paper/printing and rubber/plastics sectors with the majors losers in the textiles and chemical sector.

Recent population figures for the state indicate that between April 1980 and July 1986, the total number of persons residing in Tennessee rose 4.6 percent and now stands at 4.8 million. The net natural (births minus deaths) increase was 156,000 persons, with net migration accounting for the addition of 55,000 new residents. Williamson County experienced the largest increase in population, up 24.1 percent from 1980, while Crockett County registered the largest decline at 4.9 percent. Both Shelby and Davidson counties recorded gains slightly above 4.0 percent, with Knox County advancing 5.1 percent. Hamilton County was the only metropolitan area to register a decline in population. Most of the larger population gains were recorded in counties adjacent to the Nashville/Davidson metropolitan area.

Finally, the following is a compilation of recent laws passed by the Tennessee General Assembly that are of general public interest:

Chapter 311. This bill authorizes horse racing with pari-mutuel wagering upon approval by referendum with one such establishment in each of the state's three grand divisions. The bill, however, exempts county fairs, which would be limited to racing events of under three days duration. The county in which the racing track is located is slated to receive 30.0 percent of the tax revenues with the remaining portion allocated to all other local governments based on population. The bill also establishes a racing development fund for the horse breeding industry based on the amount of excess funds remaining after all state costs have been paid.

Chapter 95. Removes the exemption for members of the U.S. armed forces from the 21-year-old drinking age requirement.

Chapter 303. Allows child-support payments to be deducted from unemployment compensation in some counties.

Chapter 241. Authorizes use of inmates by local governments to rehabilitate substandard housing for low-income persons.

Chapter 313. Allows raising the speed limit to 65 under certain conditions.

Chapter 290. Authorizes the issuance and the sale of citizen bonds and citizen revenue bonds under the Local Government Obligation Acts of 1986.

Chapter 94. Requires all telephone service users to pay service charges for 911 emergency service and provides remedies for nonpayment of those charges.

Chapter 118. Creates confidentiality of organ-donor records.

Chapter 282. Assures that mineral estates are properly registered and are on the tax rolls. The law requires mineral interest owners to register within the next three years or face back assessment, reassessment, and a 25.0 percent penalty.

TENNESSEE CORPORATE NEWS

UNITED CITIES GAS (Brentwood) and TBC CORPORATION (Memphis). These two companies recently had very favorable articles published in *Barron's*, which pointed to the strength of recent acquisitions made by both companies. United Cities' acquisitions increased propane gas sales, which helped to boost revenues. The acquisitions increased Cities' customer base by 13.0 percent. And, while tire sales account for 75.0 percent of TBC's revenues, the company has been registering rapid expansion in battery sales due to its acquisition of Battery Associates in 1984.

FIRST TENNESSEE BANK (Memphis). The bank recently became a member of GulfNet, one of the nation's fastest growing automatic teller machine (ATM) networks. Additionally, the bank's fixed income portfolio was named one of the nation's top-ten managed accounts and only one of two southern bank funds ranked in the top ten. The bank also announced a special reserve provision of $5.2 million to cover possible loan losses in Latin America. Total loan exposure is tagged at $42.1 million with the majority in Mexico. Finally, the bank announced the sale of $75.0 million in subordinated capital notes due in 1999 carrying a yield of 10.45 percent. The notes are non-redeemable prior to maturity, except under certain conditions.

INTERNATIONAL CLINICAL LABS (Nashville). Increased testing for AIDS has resulted in an expansion of testing at the company labs. The company reported that AIDS testing has grown from 60 per day last November to 650 per day in April. The increased testing is primarily the result of a recommendation by the Center for Disease Control that people who received a blood transfusion between 1978 and 1985 be tested for the AIDS virus.

burden and are more likely to be considered relevant by the policymakers.

The following discussion utilizes break-even analysis to emphasize some inconsistencies inherent in hospital pricing policies. It also mentions the importance of analyzing the cost structure on an individual hospital or service basis, as opposed to utilization of an average cost estimate. Linear cost and revenue of functions are assumed here because of two factors: (1) no significant economies of scale are believed to exist in the hospital industry; and, (2) in the short run, the price of a specific patient service is fixed.

The purpose of the following example is to introduce break-even analysis, to establish the relationship that exists between fixed and variable costs, and to establish the effect of these costs on profit measurements.

Example 1 - Simple Break-even Analysis

Let us assume a single x-ray machine has a fixed cost of \$100,000; a patient is charged a price of \$50 for each x-ray; and the hospital's variable cost of producing that x-ray is \$25. The hospital's break-even point for producing x-rays, given these assumptions, is calculated through standard profit analysis. Total revenues received from x-rays are \$50q, where q is the number of x-ray procedures. If each patient is x-rayed only once, then q represents the number of patients served.

Total costs of providing x-rays are found by adding the fixed and variable costs, \$100,000 + \$25q. Total fixed cost is \$100,000, and \$25q is total variable cost because each time an x-ray is made, it costs the hosptial an additional \$25. To break even, total revenue must equal total costs. This means that total revenue less total costs equals zero, or 0 = \$50q - (\$100,000 + \$25q). The number of x-rays necessary to reach the break-even point is found by rearranging the above expression to solve for q. So in this example, the break-even number of x-rays = q = \$100,000/(\$50-\$25) = 4,000 patients.

This above mentioned result implies the following:

- —4,000 x-rays must be produced, or 4,000 patients served in order to break even;
- —total revenue generated from the 4,000 patients would be \$50 x 4,000, or \$200,000;
- —total cost is \$100,000 + \$25 (4,000) = \$200,000;
- —at the break-even point, total cost is 100 percent of revenue.

To determine how the relationship between total cost and total revenue changes as output exceeds the break-even level, the following values are calculated. In this case, the hospital now serves 6,000 patients rather than 4,000 patients.

- —Total revenue is \$50 x 6,000 = \$300,000.
- —Total cost is \$100,000 + \$25 (6,000) = \$250,000.
- —Total cost is only eighty-three percent of total revenue.

Under the cost and price assumptions, the hospital reaches a cost-to-charge ratio of seventy-five percent only when the utilization rate rises to 8,000 patients or 8,000 x-rays. Note that seventy-five percent of total revenue is the percentage that some segments of the industry have suggested as the appropriate manner to estimate indigent care.

The example above outlines two important points. First, when hospitals report a cost-to-revenue ratio of less than 100 percent, they are implicitly stating that they are making a profit. This outcome reduces the effectiveness of the indigent-care cost argument. Second, the break-even formula shows that hospitals with higher fixed costs must serve more patients in order to break even. The same reasoning applies to variable costs. At a given price for services, hospitals with higher than industry average variable costs may not break even, while lower-cost hospitals enjoy a profit on the same number of patients served.

The Relationship Between Policy Alternatives and the Indigent-Care Burden

The break-even formula can be used to illustrate the importance of various policy alternatives for funding indigent care. One alternative is to increase the price of services charged to patients who pay, hoping that the break-even point can be reached by serving a smaller number of patients. Additional paying patients served would then increase profits for the hospital. Raising the price of hospital services, however, may prove to worsen rather than alleviate the problem.

For the past decade, the average hospital stay has been shortened while the utilization rate has fallen. If a hospital's utilization rate falls below the break-even level, which was 4,000 patients in Example 1, the hospital incurs costs in excess of 100 percent of revenues and is operating at an actual loss. Although raising the price of a patient service may generate more revenue per number of services provided, it also increases the possibility that patients will seek substitutes for those services—such as outpatient surgery or emergency services—at an outpatient clinic.

Patients' responses to a price increase will ultimately determine the level of decline that hospitals experience in selling health-care services. Depending upon the availability of substitute services and the relative size of the price increase necessary to maintain a break-even point, the number of patients served may be reduced very little, or dramatically, with utilization rates falling correspondingly.

Additionally, increasing the price of services results in larger insurance premiums for individual insurance purchasers and increased costs to public or private organizations that provide insurance coverage. The cost increase may create additional uncompensated-care problems for hospitals because individuals and organizations may not be able to purchase more insurance. The consequence is an increase in the likelihood that the costs of an illness or injury will outstrip an individual's resources—thus creating a medical indigent. The problem of uncompensated care and the effect of increasing prices on the uncompensated-care burden is illustrated in Example 2.

Example 2 - Uncompensated Care

Let's assume the hosptial envisioned in Example 1 is now serving 5,000 patients, which under the conditions listed there, would be more than enough to break even in x-ray procedures.

- —Total revenues would be $25 x 5,000, or $250,000, if all patients pay their x-ray bill.
- —If ten percent of patients pay nothing, then only 4,500 patients pay their $50 charge, and total revenue falls to $225,000.
- —Total costs, however, are still generated at a level of 5,000 patients served, and total costs are $100,000 + $25 (5,000) = $225,000.
- —The hospital is just breaking even and has $25,000 in uncollected revenue.

In order to maintain investor interest, finance the purchase of equipment, or otherwise expand services, the hospital will presumably increase the price of x-rays in order to generate enough revenues to reduce some of the shortfall in expected revenues. In reality, an increase in the price of a patient service is expected to reduce the quantity demanded by some amount, but we continue to use the same utilization rate (5,000 patients) merely to simplify the example.

- —In this case, the uncollected portion of total revenues amounts to $25,000; yet, if 500 patients pay nothing, the portion of total costs lost to uncompensated-care expenses is only $25 x 500, or $12,500.
- —Because variable costs are the additional costs incurred from serving the nonpaying patient, these are the only portion of total costs that are incurred and not reimbursed to the hosptial.
- —Note that the $100,000 fixed cost of the x-ray machine is not used in the preceding calculation.

If the hospital is operating just at a break-even level when uncompensated care is given, the result could be as follows:

- —If the hospital is providing x-rays for 4,000 patients, as required to break even, and ten percent of those 4,000 do not pay their x-ray charges, then total revenue is not $200,000 as it was in Example 1, but only $180,000 ($50 x 3,600 patients).
- —Total cost is still $200,000 because fixed costs are still $100,000, and the variable cost is still $25 x 4,000 = $100,000.
- —In this case, both uncollected total revenues and the uncollected costs are $20,000. Note that the uncollected costs include $10,000 of variable costs that directly come out of the hospital's pocket and $10,000 of fixed costs that could have been recovered if all patients paid their x-ray charges.
- —Because the hospital was at the break-even point initially, the patients who do not pay are responsible for creating $20,000 of costs that were not recovered, while uncompensated care, at cost, is also $20,000. Note that if we allowed the amount of quantity demanded to decline as the price of the patient service rose, the hospital may have incurred an even larger deficit. As the price of an x-ray rises, fewer patients are served, so fewer revenues are generated. If ten percent of those patients who receive x-rays do not pay their bills, then the reduction in total revenues includes those revenues lost from patients who would have purchased an x-ray before the price increase. The reduction also includes the ten percent of uncollected patient charges.

It is our belief that situations such as the example just described create difficulties for policymakers interested in stemming the cost of uncompensated care. These situations cause problems because the relationships between costs and revenues are probably unique to the operating circumstances of the individual hospital. As a result, a generic formula to compensate all hospitals would be unadvisable. Policies aimed toward reducing the indigent-care burden must then be constructed in such a manner that each hospital receives unique treatment; in other words, any formula developed to compensate an individual hospital must reflect that hospital's unique characteristics.

Policymakers and Uncompensated Care Funding

If policymakers agree to provide funds for indigent care, it seems likely that the funds will be allocated according to the costs associated with delivering this care. Obviously, because costs are likely to differ between hospitals, policymakers may argue that operating circumstances are unique to each hospital and reject the hospital industry's assertion that costs can always be measured as a proportion of total revenue.

Let us return to the previous examples. In the first case, where ten percent of the 5,000 patients were indigents, the actual cost to the hospital for uncompensated-care services was $12,500. In the second case, the hospital was providing services for only 4,000 patients and only 3,600 were paying; the value of uncompensated care at cost was $20,000. If $20,000 of public funds are appropriated for this second hospital, the funds would represent cost recovery, but no profit. On the other hand, if the first hospital is fully reimbursed for the $12,500 in uncompensated care at cost, the hospital is being given $12,500 in pure profits. It is our contention that policymakers may consider the two hospitals individually and would react more favorably to providing funds for the second hospital.

The following examples outline concerns that may be voiced by legislators regarding the hospital industry's need for public rather than private sources of funding. These examples also demonstrate the importance of succinct definitions of both cost- and uncompensated-care burdens.

Example 3 - Uncompensated Care and the Level of Hospital Profits

Let us assume the same hospital is now serving 8,000 patients. Total revenue is potentially $400,000, while total costs are $300,000. If ten percent of all patients do not pay their bills, then total revenues actually recovered would be $360,000.

The profit before indigent-care costs are removed is $60,000. If the hospital was compensated at cost through public funding of indigent-care debt, profit rises by another $20,000. Again, it is our contention that policy-makers will look unfavorably on compensationsto hospitals that increases already existing profits.

Another means for recouping the cost of indigent care would be to increase the price of services. It was shown in Example 2 that an increase in the price of a service would lower the break-even profit, assuming fixed and variable costs remain the same. However, it was also noted that price increases could potentially worsen the indigent-care problem. Because higher prices will likely increase the number of patients who pay none or only a portion of their hospitals bills, proposals for price increases may encounter resistance from public and private insurers who compensate hospitals for the full amount of the patient's bill. Because the user must bear the burden of noncompensated services (and if the user's means of payments does not automatically increase), the amount of total charges paid would decline. Therefore, the way the indigent-care problem is currently measured, price increases that attempt to recover lost indigent-care revenues could increase the measured magnitude of this problem.

Even when some hospitals incur indigent-care-revenue shortfalls—which is the amount of revenue lost that is measured at cost—others operate above the break-even level and experience reductions in profits, not actual losses. Public officials may have difficulty justifying the use of public funds that prevent reductions of hospital profits. Those hospitals that are already operating at low utilization rates—especially those operating some services below break-even levels—are the most vulnerable if legislators cannot agree on a solution for the indigent-care cost problem.

Within these institutions, uncompensated care at cost is strictly a loss of profit, rather than a reduction of profit, and anything less than full compensation will interfere with the hospital's ability to continue to deliver health-care services. Hence, it is again important that hospital administrators thoroughly explain the cost and pricing mechanisms currently in place within the industry and thoroughly discuss the differences in operating situations for hospitals throughout the nation.

Summary and Conclusions

Through utilization of break-even analysis, we have attempted to show that current practices neglect the proper treatment of variable costs and muddle the relationship between hospital cost and revenues, preventing determination of an optimal price for individual health services. Cost-shifting, then, results in pricing policies that make current estimates of the size of the indigent-care burden suspect. Additionally, we have shown that attempts to cure the indigent-care problem through price increases may have a detrimental impact on the size of the uncompensated-care problem by increasing the probability of medical indigence.

Finally, we believe that the public should be aware that the current method of employing cost-shifting to solve the problem of uncompensated care is causing the entire pricing mechanism to break down and is conveying artificial signals to the marketplace about the magnitude of the indigent-care problem. Also, the cost-shifting method may actually worsen rather than alleviate the magnitude of the indigent—care problem as currently measured.

Footnotes

[1] R. Green and T. Baker, "Paging Dr. Adam Smith," *Forbes* 127, 1981: 152-157.

[2] Barry Keating, "Cost Shifting: An Empirical Examination of Hospital Bureaucracy," *Applied Economics* 17 (1984): 279-289.

[3] Robert V. Pattison and Hallie M. Katz, "Investor-Owned and Not-For-Profit Hospitals: A Comparison Based on California Data," *The New England Journal of Medicine* 309 (August 1983): 347-353.

[4] Keating, loc. cit.

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ON THE CHANGING STRATEGY OF HEALTH-CARE OPERATIONS

*Satish Mehra**

In recent years, health-care systems, such as hospitals, have been subjected to enormous amounts of pressure from the public and the private sectors to contain costs. It is expected that this trend of reducing costs, and thus managing efficiently, will continue in the foreseeable future. Health-care systems that were considered to be sacred while looking into cutting costs are now a subject of serious controversy. Before discussing further details, certain background information will be presented.

Era of Prospective Pricing Systems

On March 24, 1983, Medicare's Prospective Pricing System (PPS) was approved by Congress as part of the Social Security Amendment of 1983. This change in policy continues a movement away from retrospective cost-based payments as a basis for reimbursements to hospitals by Medicare. The PPS has commonly been viewed as the most significant change in the Medicare system since its inception eighteen years ago. While providing new stability for Medicare, the PPS will impose new challenges for hospital management (American Medical Association, 1983). Hospitals will now benefit from effective management of its resources and suffer from inadequate management practices (*Business Week*, 1984).

Beginning October 1, 1983, and continuing each of the next three years, the prospective pricing was to be implemented to twenty-five percent per year until 100 percent implementation was reached in 1986. In 1982, Medicare accounted for $40 billion, about thirty-eight percent of the income of the 6,000 hospitals under Medicare. In addition to Medicare, other insuring institutions such as Blue Cross are planning to implement PPSs very similar to Medicare's. Eventually, all insuring institutions may be forced to go to this type of payment system to control costs (*Business Week*, 1984).

The PPS is based on 467 diagnosis-related groups (DRG), which assign illnesses into related categories. Rates for each of the 467 DRGs have been established by a group of Yale University researchers who have developed the system. The DRG classification is based on the primary and secondary diagnosis, the age of the patient, and the patient's condition upon release. Hospitals will be reimbursed a fixed amount for each patient's DRG, which is based on a national average of the cost of treating that DRG.

Cost Containment and Its Impact

Cost containment and its impact on different aspects of health-care systems has been a focal point of many studies (Crawford, 1984; Horn, 1985; Crawford, 1985; Larson, 1985; Herzlinger, 1985). These studies have generally analyzed the impact of the DRGs on hospital operations in broad terms and in a very justifiable manner. DRGs are relatively new, and their effect on day-to-day operations at many hospitals is just beginning to be felt. Moreover, the impact of DRGs is not conclusive, and thus, continued research is necessary. The objective of this article is to analyze the strategic implications of DRGs and the PPS on hospitals.

This article is based upon an in-depth study of four hospitals serving major metropolitan areas. Two of these are teaching hospitals and the others are nonteaching. These hospitals are not-for-profit, and the number of beds range from 200 to 670. The hospitals also serve the same mix of clientele. Information was provided by hospital administrators and their senior associates who handled fiscal operations and information systems. Basic methodology involved in-depth interviews as well as examination of available records.

Based upon the data gathered in this study, it appears that the PPS, due to the enforcement of DRGs, has widely affected the operational side of the hospitals' health-care delivery systems. Operational strategy and information systems are two major areas affected by the PPS concept.

Operations Strategy

Under the DRG applications, cost cutting obviously has become the main target of all hospitals. Cost cutting/reduction programs have led to the changes in the working environment of hospitals. Hence, like any other organization, a change in the working environment is leading to changes in the operational strategy of hospitals. Hospitals that are sensitive to the PPS are finding themselves not only going through a changing stage, but they are also finding their operations at risk. Being a risk, hospitals are looking hard at DRGs to examine their impact on operations.

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DRGs are strongly affecting the revenue of hospitals, and therefore, each DRG is being examined for its revenue-generating potential. This study found that hospitals are divided on the issues of whether to view DRGs in the money-making/losing context. Teaching hospitals are against labeling DRGs as profitable or unprofitable. The reasoning being that there are no good or bad DRGs for the purpose of teaching future physicians. Nonetheless, all hospitals are keeping a close track of the dollars that each DRG brings in. This has resulted in some hospitals keeping detailed cost-tracking procedures. One such example is presented in Table 1, which contains a sample report for a hospital on dollar analysis relative to various DRGs. This is an indication of how hospitals carefully track their expenses. However, the ability of hospitals to keep track of costs is mainly a function of their ability to gather and analyze data accurately and timely. If a hospital uses properly planned procedures and adequately trained personnel, data manipulation becomes affordable and advantageous for a better operational environment.

Furthermore, because cost containment will be the wave of the future, it appears that PPSs will eventually cover all operations in the near future. Therefore, in order to develop a strategy for cutting costs, certain hospitals have begun developing staff and gathering information to agree with their operating philosophy. Good documentation is a top priority item. Next, a DRG section can be created that becomes a "nerve center" for tracking costs and other relevent data. Extensive reports can be generated by the manipulation of the complex database. This can result in hospitals successfully developing strategic advantages in their operations based upon two critical factors: first, good documentation of information; and second, intelligent analysis of this information for better management.

Under a different administrative philosophy, certain hospitals recognize that some DRGs are more profitable than others. The central theme being that one should locate money-losing DRGs and either make them cost effective or find ways to de-emphasize them from their operations. One can label this operating philosophy as dollar-driven. Although there appears to be nothing unusual about this type of operation, one cannot help but speculate that dealing only with money-losing DRGs might undermine the whole concept of a cost-effective operation. A DRG that is profitable in one period may not stay as profitable in another period unless proper cost-effective measures are undertaken from period to period. Cost effectiveness should be a hospital-wide process, and it should not be confined only to certain measures. A profit-making DRG and a cost-effective DRG may not have much correlation at all, and hospital management may not recognize it. A cost-effective DRG would eventually produce profits for the hospital in the long run. Results over the long term should be the focal point of all strategies.

Other Organizational Implications

Among other areas affected by the PPS, the marketing and administrative areas of health-care facilities seem to be affected much more significantly. In general, it appears that the management of health-care operations is increasingly taking a business-like approach with cost containment as a major objective.

From the marketing standpoint, hospitals seem to be taking many approaches, which range from developing feeder systems (i.e., feeding patients from their own smaller satellite hospitals) to openly appealing to the public for specific hospital needs. Some hospitals have embarked upon convincing physicians to consider only one hospital for their clients (i.e., the one-doctor/one-hospital concept). It is hoped that the one-doctor/one-hospital concept will ensure increased business for the hospital; however, it also implies that hospitals will have to re-evaluate their relationship with their physicians, which means treating physicians as their customers also.

Administratively, the cost-containment impact is being felt in two areas: first, in the way the medical staff is being included in a hospital's organizational structure; and second, in the way the role of the hospital administrator has changed.

With the new emphasis on controlling costs, the medical staff will have to be involved more than ever before in the decision-making process. It is believed that

Table 1

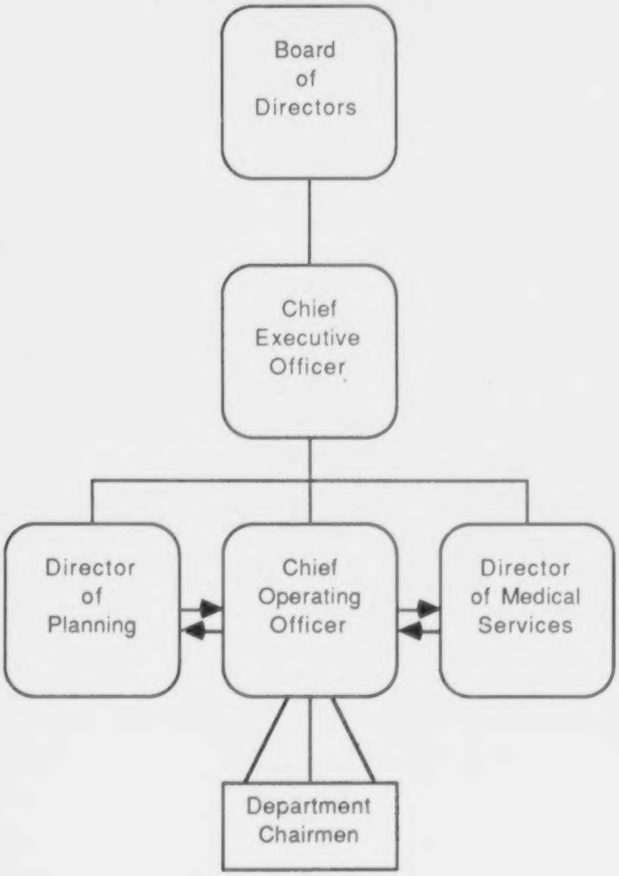
DOLLAR ANALYSIS REPORT (FISCAL YEAR)

DRG #	TOTAL DAY STAY	LAB	ANCILLARIES		TOTAL COST	AVG COST/PER DAY	TOTAL PPS REIMBURSE	REIMBURSE LESS COST
			RADIO	PHARM				
108	100	$ 9,246	$ 1,310	$ 3,650	$ 87,249	$ 872	$ 347,916	$ 260,667
124	537	27,293	9,940	14,325	323,243	602	494,195	170,952
125	136	8,190	6,731	3,095	103,826	763	261,545	157,719
82	307	26,100	22,085	16,650	147,770	481	219,375	71,605
296	293	24,900	7,075	10,125	143,365	489	187,875	44,510
310	161	15,380	4,033	4,600	93,590	581	133,688	40,098
416	197	15,500	7,265	13,810	104,675	531	136,072	31,397
239	246	10,135	17,207	6,450	93,300	379	124,025	30,725

physicians are responsible for more than seventy-five percent of a hospital's cost because of the treatments and procedures ordered. In reviewing preliminary DRG data, it was found that eighty percent of hospital expenditures was attributable to fifteen percent of the medical staff (Kovener & Palmer, 1983). Many administrators and doctors believe that the key to a hospital's success under the new system might happen by changing the way physicians manage. Under the cost-plus-reimbursement system, a physician who used a large number of beds and many other services contributed much to the hospital's revenue; and hence, he/she was an asset to the hospital. However, with the new prospective reimbursement system, such a physician can become a liability. Here the challenge is to reorganize a hospital's structure in such a way that the medical staff is fully involved in the management of the hospital. One answer to this problem is to include a director of medical services in the hospital's organizational chart as shown in Figure 1. The justification for such an inclusion is to enhance communications between medicine and management and to recognize problem areas and other pitfalls well before they become chronic cases not curable by management actions alone.

Administratively, the major impact of DRGs has been on the very basic operating processes of the hospital. With the goal of reducing costs, hospitals have begun enhancing the education of their staff. More personnel have been added to the administration department (at the risk of increasing some costs) to assure good documentation of information, and hence, of tracking costs. Concepts such as "expense management" and "productivity enhancement" (which were not given much emphasis earlier) are now considered as significant factors as well as principles of "good hospital management." The role of the nursing staff has been enhanced through training in information management. The nursing staff is being utilized as "facilitators" of the cost-containment process.

Figure 1
Organizational Chart For
Hospital Operations



The role of administrators is also changing. The administrator is becoming more like a business manager requiring enhanced skills in resource management, competitive strategies, and policy making. Hospitals have begun to recognize their administrators as chief operating officers. In their enhanced roles, administrators find themselves communicating more frequently with physicians regarding their case mix. The administrators also are "cautiously educating" doctors regarding the "dollar impact" of their patients on hospital operations. Once again, hospital administrators who act as chief operating officers are able to place a hospital in an enhanced strategic position vis-à-vis the competitive environment in the community they serve.

Summary

In view of the fact that the PPS has affected hospital operations, one needs to develop a framework of operations based upon elements that will provide cost-effective operations as well as place a hospital in a strategically advantageous position. This framework of operations should be based upon, at minimum, the following considerations:

1. Analyze DRGs from their revenue-generating potential. However, one need not concentrate only on profitable DRGs. Efforts should be directed towards making all DRGs cost effective. In the long run, such an effort will prove to be more advantageous. In the process of DRG analysis, one should also examine the purpose (e.g., teaching hospital) as well as the clientele that a particular hospital services. This will enable hospitals to formulate the appropriate strategy to cope with DRGs.
2. Hospitals must understand the locale (and clientele within the locale) they serve. This is necessary in order to develop good marketing strategies. In larger communities where more than a few hospitals are in existence, it is necessary to closely examine the business environment so that effective marketing strategies can be used.
3. Administratively, an organizational structure should include a director of medical services alongside the elevated role of hospital administrator. This will enhance communication between medical and nonmedical units. Good communication across units will

form the basis for better management of resources, and hence, efficient operations.

4. Education of the support staff (both medical and nonmedical) in achieving cost effectiveness. This should include better information gathering and documentation and thorough analysis of gathered data.

Large and small hospitals alike are expected to see a more business-like environment in their operations. Hospital administrators will see their roles change to become more like a chief operating officer in a corporation. There will be increased staffing in the administrative units of large hospitals to encounter the negative impact of DRGs and to provide a better interface between medicine and management. Whether medicine and management sail smoothly in coming years will depend heavily upon the ability of administrators of hospitals to understand their environment better and position their operations strategically in order to compete effectively.

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PHARMACEUTICAL R&D PERFORMED BY INDUSTRY, GOVERNMENT, AND ACADEMIA: PROS AND CONS

*Susan A. Simmons and Martin E. Brown**

Introduction

The history of drug development and its introduction in the U.S. is marked by some discouraging events. Since the 1960s, there has been a decline in the number of new pharmaceutical products introduced each year in the U.S. In the 1950s, the annual number of new products averaged 358, and the number of new single chemicals averaged 42. These averages fell to 160 and 22 in the 1960s. By the 1970s, the number of new products declined to seventy-nine, while the number of new, single chemicals fell to approximately sixteen (Schnee, 1978).

Over this same period, the costs of innovation in conjunction with the risks of innovation have risen (Grabowski, 1978). A pre-1962 estimate of the cost and time to develop a new chemical entity is $500,000 and two years. The cost and time ranged from $3 million to $5 million and five to seven years by 1971 (Schnee, 1978). A 1978 study places the cost of new drug innovation at $15 million (Hansen, 1979). More recently, a 1982 study estimates the present value of research and development (R&D) costs of producing a new drug at more than $70 million with the process taking in excess of ten years from initial synthesis to commercial introduction (Grabowski, 1978, 1982).

These forces of increasing costs and declining introduction of new drugs have caused a drop in the rate of return (ROR) from pharmaceutical R&D. A study by Statman (1983) provides yearly estimates of internal ROR from new drugs. From a value of 20.9 percent in 1954, the ROR remains steady between 21.0 and 23.0 percent from 1956 through 1965 and then declines to 10.3 and 12.5 percent between 1971 and 1978.

Using data from 1956 through 1971, another study has shown that the ROR on pharmaceutical R&D is lower in the U.S. than in the U.K. For a seven-year product life, which is the average useful life of a drug, the ROR for the U.S. was 11.7 percent, and it was 16.9 percent for the U.K. (Simmons, 1981).

More research is being done abroad because of more favorable research conditions. Before 1972, foreign R&D expenditures comprised a relatively small proportion of U.S. drug firms' total R&D budgets, approximately eight percent. Between 1972 and 1976, the percentage of foreign R&D averaged fifteen percent. The pharmaceutical industry's history of continued increases in overseas R&D makes it unique among U.S. industries (Schnee, 1978).

One consequence of the technology shift is that the U.S. suffers a "drug lag" because of the number of pharmaceutical products available abroad (Wardell, 1975). While all major countries have strict rules for testing new drugs, the length of time required to obtain approval in the U.S. is greater. As a result, new compounds discovered by U.S. firms are first introduced abroad.

The existence of a possible drug lag is documented in a study by Wardell (1973), which compared U.S. and U.K. drug introductions between 1962 to 1971. The study found that in nine therapeutic categories, nearly four times as many new drugs (single chemical entities) became exclusively available in Britain (eighty) as became exclusively available in the U.S. (twenty). For the eighty-two products introduced in both countries, fourteen were introduced in the same year in both countries, forty-three were first introduced in the U.K., and twenty-five were initiated in the U.S. (Wardell, 1973).

Thus, these facts point to a decline in the development and introduction of new drugs in the U.S. Further, R&D activity has begun to be transferred abroad. There are several theories for the decline in productivity since the early 1960s, including these five:

1. Tighter regulation of the industry by the FDA.
2. The decline is not real. While there has been a decline in the total number of new drugs introduced, the number of important new drugs introduced annually has not declined.

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3. There has been a depletion of research opportunities brought about by the rapid rate of new drug development in the 1950s.
4. The thalidomide episode in the early 1960s made drug firms and physicians more cautious in introducing new drugs.
5. Advances in pharmacological science led to higher drug costs (Grabowski, Vernon, & Thomas, 1978).

Most studies attribute the productivity decline to the 1962 Kefauver-Harris amendments to the 1938 Food, Drug and Cosmetic Act (Laubach, 1980; Grabowski, 1976, 1978). These amendments resulted in increased regulation of the drug introduction process.

With these facts in mind, the need for reviving pharmaceutical research in the U.S. is apparent. Public policy aimed at encouraging domestic pharmaceutical R&D is warranted. One aspect of this public policy is identification of the new drug development arena that promises to be the most effective in producing new pharmaceutical entities. The purpose of this research is to examine the pros and cons of pharmaceutical research occurring in the arenas of private industry, government, and academia.

Private Industry—Pros

Support for private industry research in pharmaceuticals is often based on the track record of industry research. A study by Schwartzman (1976) finds that any public policy to encourage the R&D of new drugs should be based on a consideration of the likely sources for new drugs. The study shows that eighty-six percent of the chemical entities introduced between 1960 and 1969 were discovered by the industry. Based on these studies and his own observation of the manner in which industry laboratories have systemized drug research and have mobilized and organized resources, Schwartzman (1976) concluded that the industry is likely to be the primary source of drug discoveries.

The prior success rate of industrial R&D is also cited in a study by Virts (1977). He carries the analysis further and makes his case for industrial R&D in three steps. The first step involves an examination of how well the industry has performed historically. Virts makes four points in support of past R&D by the pharmaceutical industry:

1. Many new basic pharmaceutical agents have been introduced, although the number is declining.
2. Approximately ninety percent of these pharmaceutical agents have come from industrial laboratories.
3. The U.S. has been the prime source for new drugs.
4. The special nature of pharmaceutical R&D requires the efforts of industry and the advantages of the profit motive.

The second step of Virts' case is to demonstrate the economic efficiency of the industry. Studies of economic profit in the industry are showing levels that are consistent with "workable competition," which thereby fulfills the criterion for economic efficiency. R&D is the key to the competitive structure that exists in the industry because it produces new products that lead to price competition. Virts said that R&D itself can lead to efficiency by stimulating cost containment.

The third step of Virts' case for pharmaceutical industry R&D concerns the cost of alternatives. He cites the problem of the criteria used by and the types of pressures exerted on political bureaucracies that are involved in resource allocation. Bureaucratic resource allocations will differ from those made by private industry under competition and are less likely to be in the interest of the general public if that interest is in supplying drugs at minimum cost.

One of the studies lending support to Virts' statement regarding competition in the industry was conducted by Cocks (1975), who found evidence that R&D by pharmaceutical firms led to price-competitive behavior. He suggested that public policy should weigh carefully the costs and benefits of existing industry R&D in light of its effects on the competitive behavior in the industry.

Another measure of the industry's prior success is the trend in morbidity and mortality data on diseases for which drug treatments have been introduced and developed. Siskind (1978) examined the data and concluded that few other sectors of society have had such a beneficial impact on lives as the pharmaceutical industry. Silverman and Lee (1974) studied similar morbidity and mortality data and reached a similar conclusion.

Through his research, Comanor (1964) found that approximately half of the total pharmaceutical research and development expenditures are used for synthesizing, purifying, modifying, and preparing substances that are suitable for use in physiological testing. This work must be done even when basic pharmaceutical discoveries may be made outside the industry. Comanor acknowledged the extensive resources this type of research demands and concluded that a large share of pharmaceutical research should be viewed as complementary with, rather than competitive with, research conducted outside the industry.

Finally, Finkel of the Food and Drug Administration has said that "... the development of new drugs should be based largely in the private sector because the pharmaceutical industry has the talent required and has demonstrated its willingness and capacity to respond" (1980).

Private Industry—Cons

One area in which industry research has been criticized concerns the ability of a R&D department to operate within the bureaucratic structure of the industry. Faust and Ackerman (1972) suggest that one weakness of R&D in large pharmaceutical firms seems to be "administrivia," which is the bureaucratic demands and planning overkill that can submerge the creative and innovative spirit of individuals.

Lasagna (1979) refers to the "NIH syndrome." This does not refer to the National Institutes of Health but to the phrase, "not invented here." If a company's scientists did not develop a particular idea, then the idea or drug is viewed as not worth considering.

Cuddihy (1977) expressed a view similar to Faust and Ackerman (1972). If outside problems were not enough ". . . the researchers must confront others within their organization. The corporate marketing department exercises considerable influence. The size of a potential market for a drug product compared to its development costs may often become a major or deciding influence in a project. While the corporation prospers, pressures on research may diminish; but if economic growth diminishes, management may bring pressure to bear on research. Research under pressure can hardly be expected to yield the desired results nor will it extract any new drug with unexpected virtues" (1979).

Arising from the drive toward economic growth is the willingness to develop drugs without a large potential market. This brings about the problem of "orphan drugs," which are those that are medically important but commercially unprofitable and thus are frequently not developed by private industry. Van Woert (1978), Asbury and Stalley (1981), and Lasagna (1979) are among those who have stressed the need for a public policy to encourage the development of orphan drugs.

Comanor (1964) investigated the role of the patent system on industry R&D. Industrial pharmaceutical research is conducted in an arena of intense product rivalry. And as a result, he found that a substantial amount of work is done to invent around existing patents. While important discoveries have been made, this type of work has also led to a great number of "me-too" products, which have pharmacological effects that are similar to drugs on the market.

Comanor also cited the amount of R&D devoted to developing new combinations of existing drugs and new dosage forms. Work of this type is not likely to result in major advances, but the minor advances that do come about are important elements in the development of new technology. An example is the dermal patch, a new method for delivering drugs.

Lall (1973) argued that the pharmaceutical industry has developed a number of valuable new products through its R&D that could be produced at a lesser cost to society. Lall also adds that industrial pharmaceutical research is wasteful and not necessarily efficient. Four factors support this view:

1. R&D is concentrated in large firms. Empirical work suggests that there are economies of scale applicable to R&D to a point after which R&D productivity declines. Most of the big drug firms are larger than the "optimum" size, which indicates that R&D resources may not be most efficiently distributed. (A later study by Schwartzman (1976), however, concluded that large firms have economies of scale in R&D and that the number of drug discoveries increases more than proportionally with firm size. Schwartzman attributed the disagreement of his study with previous studies to the use of poor data or faulty analysis in the earlier studies.)
2. Much R&D is devoted to "squeezing" out maximum profits from the patent system. Industry R&D copies many products that are already on the market. Like Comanor (1964), Lall (1973) acknowledges that these "me-too" products can be useful but suggests that the same improvement could be obtained at lower costs in nonindustry laboratories.
3. The division of labor between basic research conducted by government and academic institutions and the market-oriented research conducted by the industry is not necessarily complementary. If the research structure was different, less wasteful R&D might occur.
4. Finally, there is a problem with drug patents. Besides the expenditures on imitative R&D, the complexity of patent laws forces small firms to sell their innovations to large competitors to avoid the patenting process. This works to limit rather than promote competition in research. Also, a large portion of expense allegedly going to R&D actually goes into buying international patents.

The problem of profit motivation interfering with the objectivity of R&D is discussed by Sharpiro (1978). It is claimed that a pharmaceutical firm's interpretation of data about its drugs may be biased in order to obtain a commercially successful drug. Further, clinical laboratories receiving financial support from the pharmaceutical industry have been viewed as creating conflicts of interest that could lead to either conscious or unconscious influencing of judgments by the researchers. As an example, Silverman and Lee (1974) cite the case of the Merrell Company, which conducted testing of MER/29, a drug designed to reduce blood cholesterol levels. After MER/29 was marketed, a large number of adverse reactions were reported. Subsequent investigations by the FDA found a considerable amount of fraud and deceit had occurred before the drug was marketed.

Government—Pros

Statements made supporting government-sponsored pharmaceutical research include the elimination of the so-called "me-too" drugs.

Bezold (1981) said that the directions and incentives of government-sponsored research differ from that of the pharmaceutical industry. Rather than the profit motive, scientific interest and research importance are factors that drive government-sponsored research. Among the reasons suggested for government involvement in research are that objectives for drug research would be made socially optimal, that the testing of new drugs would be more thorough and dependable, and that less confusion among health professions would occur because only needed drugs would be available (Bloom, 1977).

Richard Lichtman is quoted by Cooper (1969) as saying:

> The most reasonable device would be a system whereby the people produced such products as it required directly through the agency of its government. Research centers and plants responsible to the government . . . would produce for the service of the community,

> rather than for profit, such products as it was publicly directed to produce with the object of superior quality, minimum cost and coordination of activity. The government would establish centers of research, some concerned with pure theory and others with various degrees and kinds of applied knowledge, whose function from that moment would be to proceed according to the direction appropriate to each, in complete communication and in mutual support of each.

Research conducted through the National Institutes of Health (NIH) has been advocated and has several advantages. First, drugs discovered by the government could be available without a patent, which would result in a lower price to the patient (Silverman & Lee, 1974).

Second, government-sponsored R&D has been suggested as a possible solution to the orphan drug problem. A national pharmaceutical company could be established as part of the NIH to consolidate the present governmental R&D activities for orphan drugs (Van Woert, 1978). A slightly different solution for orphan drugs is contained in a provision of the Drug Regulation Reform Act of 1979. This provision would establish a National Center for Drug Science which would, among other things, develop policy and scientific research on orphan drugs (Bezold, 1981).

A third merit of government research would be control of bias, which may occur in industry research. If all required testing for safety and efficacy was conducted by government, the industry bias would be removed. Because the cost of government testing would probably be borne by taxpayers, the pharmaceutical manufacturers could then market the products at a lower price.

Government—Cons

Statements against government-sponsored pharmaceutical R&D frequently include concern over the effects that the lack of a profit motive may have on research productivity and efficiency. The discipline imposed by the profit motive would be missing in government-sponsored research (Simmons, Shull & Smith, 1981).

Schwartzman (1976) also indicates that incentives for saving money for the government are not as great as those for private industry. Also, rather than selecting areas of research based on medical or economic considerations, research areas are much more likely to be based on political considerations. One result of this may be that excessive resources will go into publicly popular areas of drug research where success is less probable rather than in less popular areas where success is more probable.

Lasagna (1979) said that the allocation of funds is wasteful because of the alternating enthusiasm-and-apathy cycle for projects that are set up only to be taken apart later on. Anyone who understands the drug development process, according to Lasagna, knows that the National Center for Drug Science as proposed in the Drug Regulation Reform Act is not going to answer the problem of orphan drugs.

Schwartzman (1976) suggests that the NIH has not been effective as a source of new drugs. More than ninety-five percent of the compounds that have been studied by the NIH came from the pharmaceutical industry. Testimony before the House of Representatives Committee on Appropriations indicates that the NIH has not been significantly involved in identifying new drugs other than vaccines and anticancer drugs.

An assessment of government-sponsored research can be made by examining the U.S.S.R., a country where such research is already the norm. Bauer and Field (1960) reported that scientific research in pharmacology occurs primarily in institutes under the Academy of Medical Sciences and Ministry of Health. Drug production, on the other hand, is controlled by regional economic councils. A similar system in the U.S. would mean that research would be performed in government laboratories and production would be handled by private industry.

Bauer and Field (1960) also found Soviet complaints of unnecessary delays in getting new drugs to the market. These delays were caused by problems between the research institutes and production establishments and by bureaucratic "red tape" involving government testing of new drugs and approval for production.

Field (1977) said that the transition from research to large-scale production may take as long as seven years, resulting in new products being obsolete by the time they reach the pharmacy shelf. Field said that "the two countries and their economies are so different that it is impossible to predict that a radical reformation of the American pharmaceutical system along the lines suggested by the critics of the industry would produce a similar situation to that described for the Soviet Union."

Academia—Pros

Support for academic pharmaceutical R&D seems to be somewhat limited. Comanor (1964) said that clinical studies are normally conducted by physicians and medical; institutions for the pharmaceutical industry. Schwartzman (1976) documented some major drug discoveries as evidence of the productivity of academic research, including the Salk Vaccine, cortisone, and the birth-control pill.

The Kefauver committee investigations emphasized the role of nonindustry research efforts and suggested that most important discoveries resulted from work outside the industry. However, the industry claimed that most of the new drugs came from their laboratories.

Academia—Cons

Schwartzman (1976) said that academic discoveries were financed by outside agencies. Without outside help, academic laboratories are unlikely to have sufficient resources for drug research. In a survey of seventeen nonprofit, university laboratories, only four reported having discovered drugs, and all of the drugs listed, except one, were anticancer compounds. He concluded that academic and nonprofit laboratories are not likely to be a source of new drugs other than anticancer drugs.

In addition to the lack of resources to support drug development, the atmosphere and attitudes found in the university setting curtail drug innovation. Comanor (1964) observed that applied R&D activities are highly routine, which make them uninteresting to academic researchers. Further, Lasagna (1969) observed that many academic researchers regard the research efforts of the drug industry as too commercialistic. Lasagna also observed that most university pharmacologists are not concerned with new drug development but rather with mechanism-of-action studies of drugs. Finally, Palmer (1977) said that "academia does not seem to clearly perceive that it is part of the drug discovery system."

Summary

The decline in drug development and marketing has been evident since the 1960s. The need for a public policy to encourage domestic pharmaceutical R&D has been noted. The question that arises is this: Which arena of drug research and development—industry, government, or academia—is most conducive to producing new pharmaceutical entities? This study surveyed the pros and cons of research in each of those three arenas.

The positive aspects of housing drug research in industry are many. First, industry has been responsible for introducing the most new entities. The profit motive, inherent in industry, also is necessary for successful pharmaceutical R&D. Products of industry R&D lead to price competition and economic efficiency by encouraging cost containment. Cost controls found in industry are not likely to be found elsewhere; so, if the goal is to supply drugs at minimum cost, industry is the proper setting.

Pharmaceutical industry research has brought about a decline in morbidity and mortality. Other sectors cannot claim credit for these accomplishments.

There are also criticisms of industry R&D. Because of the bureaucracy, innovativeness may be swallowed in large R&D departments. Also, industry may not consider conducting research on drugs developed outside the company. The profit motive may stifle some industry research. If a large market does not exist for a drug, it may not be developed. This leads to "orphan drugs," i.e., drugs that are medically important but that are not developed because they are unprofitable. Another criticism of industry is its emphasis on developing new combinations of existing drugs that are similar to ones already on the market.

Proponents of government-sponsored research feel that less R&D would be wasted on inventing around patents. Scientific interest and research importance guide government research. Research through the NIH has been advocated and would result in lower priced drugs because no patent protection would be granted. Also, orphan drugs could be developed through government research.

Without the profit motive, though, some argue that government-sponsored research would not result in lower priced drugs. Also, political forces may dictate R&D efforts.

Pros and cons of research in academia are limited, although some major drug discoveries have surfaced. Available resources do not support pharmaceutical research. University research is not concerned with drug development as much as it is with pharmacokinetics.

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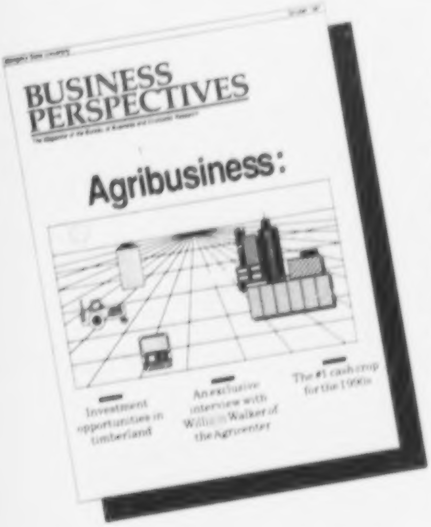
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